Presquile NWR - Narrative Report - 1970

PRESQUILE NATIONAL WILDLIFE REFUGE
HOPEWELL, VIRGINIA
NARRATIVE REPORT
CALENDAR YEAR 1970

PERSONNEL

REFUGE MANAGER	PAUL D. DALY
MAINTENANCEMAN	LUTHER B. VICK, JR.
CLERK TYPIST	IRENE S. LIPCHAK
LABORER (INTERMITTENT)	DENNIS W. SEBERA (5/19/70 to 7/16/70; 9/14/70 to 9/23/70)
LABORER (INTERMITTENT)	JAMES N. SMITH (7/22/70 to 8/20/70; 12/23/70 to 12/31/70)
LABORER (INTERMITTENT)	STEPHEN M. TOMLINSON 8/26/70 to 9/11/70)

I. GENERAL

Presquile although one of our smallest National Wildlife Refuges in acreage (2129), contributes to the system in a manner far out of proportion to its size. An island in the history laden James River, Presquile provides feeding and resting habitat for normal peak wintering populations of over 10,000 Canada geese and 15,000 ducks of various species annually. The year 1970 was an interesting one at Presquile; and we hope the following narrative account depicts our entire scope of activities in a manner that the reader will find interesting and informative.

A. Weather Conditions

1970 set many records throughout Virginia as one of the driest in recent decades. The refuge had even less rainfall than nearby official weather stations, since we missed most of what few summer thundershowers the area received. The following records are from the U.S. Weather Bureau station at Hopewell, Virginia which is monitored by the Old Dominion Water Corporation. Readings are taken at the city water plant about three miles downriver from the refuge.

	Precipitation in inches				Temperature	
	1970	Normal	Snow		Max.	Min.
January	1.30	3.07	3.5		77	4
February	2.39	2.76	Trace		68	13
March	3.81	3.16			76	23
April	3.19	3.34			87	31
May	1.89	3.97			94	41
June	3.44	4.23			99	55
July	3.83	5.86			96	61
August	4.02	5.10			95	62
September	2.08	3.73			96	44
October	1.72	2.88			88	33
November	3.29	2.80			76	26
December	1.80	2.78	Trace		75	17
Total	32.76	43.68	3.5	Extremes	99	4

The new year 1970 came in style as January temperatures averaged well below normal with an official low of 4° on the 22nd. The coldest average for a week was January 4 - 10 when each night went below 10° and daytime temperatures barely reached 20° . For about two weeks all refuge swamp creeks and even the old river channel were

completely frozen over with 2" - 3" ice. There followed in the last week a real "January thaw" with pleasant days and a high reading of 77° on the 29th.

February remained quite cold on the average but with only a trace of snow on the 14th. One storm with freezing rain on the 16th and 17th put commercial power off at the refuge for about 9 hours.

March and April saw about normal amounts of rainfall and the usual spring phenomenon of warm one day and cold the next. Tides in the James River remained at normal levels.

During May we had very dry conditions which, except for a few short periods extended through the remainder of the year. Corn germination was good, but the young plants were hurt by the lack of rain from planting time to about the third week in June. Hot, humid days were the rule in June and July with very few showers to alleviate the uncomfortable conditions.

August and September remained very dry with generally warmer than normal temperatures. Buckwheat and wheat crops suffered quite a bit due to lack of soil moisture.

October started out very hot (88° on the 4th) and the first two weeks remained bone dry. Starting on the 16th, and continuing on occasion through November however, we had several good rains spaced about a week apart.

December closed out 1970 with above normal average temperatures and normal amounts of precipitation; including a trace of snow on Christmas night and again on New Year's Eve. James River tides fluctuated greatly in December with high waters covering the swamp and lower fields one week; and low tides making ferry operation impossible for a few hours the next.

We consider it fortunate that 1970 sent us no major river floods (in contrast to 1969) or storms of great magnitude. The biggest weather story and problem was with the drought; and droughts seem to be rather chronic in this section of south-central Virginia, although usually much less severe.

B. Habitat Conditions

1. Water

All refuge waters are tidal waters of the James River. Even though we are about 100 miles inland, average daily tidal amplitude

is between three and four feet. These are lunar tides, but a strong wind can affect water levels to about the same degree as on the coast. North to west winds give us our lowest tides and occur most often during the winter season. Highest tides are associated with south and east winds and are mostly during the warm weather months. Abnormally high tides flood the entire refuge wooded swamp and help considerably in making mast available to our ducks; as well as providing moisture for robust marsh growth. No water control is exercised at present.

Submergent vegetation in the James River itself is nonexistent due to the polluted, turbid conditions of the water. The City of Richmond fifteen miles upstream is the worst offender as regards sewage pollution; several times each year their treatment plants overflow and dump raw sewage into the river. Hopewell industries three miles downstream are the "champion" chemical polluters that contribute to the foul water situation. There were several fish kills in the river again this year attesting to the high river pollution. Ironically, the sewage in the river seems to have at least one beneficial effect; this being the condition of refuge marsh vegetation as will be covered in detail in the next section.

Salinities averaged higher than normal in the river this year due to the long drought. The Old Dominion Water Corporation in Hopewell monitors the river salinities for the industrial plants. The plants cannot use the water if it exceeds 50 parts per million NACL. The following table represents highest river salinities per month for the last six years. We keep this record to note any possible bad effects on vegetation due to high river salinity. None have yet been recorded; but since there have been plans underway for several years to deepen and widen the river channel from Norfolk to Richmond, vegetation could be affected if this project comes to pass.

Month	1965	1966	1967	1968	1969	1970
January	8	36	12	12	12	14
February	8	39	10	12	8	14
March	10	12	14	12	12	12
April	14	13	14	14	14	10
May	16	12	16	16	12	12
June	20	14	18	18	12	16
July	24	26	20	24	18	14
August	28	42	24	28	12	20
September	32	38	14	46	12	24
October	42	12	22	42	10	42
November	40	8	20	36	18	24
December	42	9	12	14	16	16

2. Food and Cover

Wooded swamp and marsh areas on Presquile total approximately 1050 acres. Year in and year out great quantities of natural waterfowl foods are produced here, and these are heavily utilized by various duck species. Production of food is fairly constant each year because the plants receive their moisture from the rise and fall of river tides, and are not dependent upon fluctuations in precipitation. As mentioned earlier, the presence of large amounts of sewage in the river at various times throughout the year contributes to an extremely robust growth of marsh vegetation. Samples taken of two species of smartweed P. arifolium and P. sagittatum were found to have seeds and seed heads up to four times larger than leading texts indicated as the maximum.

Marsh areas are in two small separate units. The east marsh (100 acres) is lower than the north marsh (150 acres) and is generally the first to be completely stripped of food, being normally nothing but mud flats by about January each year. Geese use the east marsh as a resting area and strangely enough it is the only place on the refuge where pintails are usually seen; sometimes in fairly large numbers (1200). Predominate plants in the east marsh are rice cutgrass (Leersia oryzoides), arrow-arum (Peltandra virginica), wandering jew (Aneilema sp.), beggartick (Bidens sp.), pickerelweed (Pontederia cordata), and dotted smartweed (Polygonum punctatum) with lesser amounts of wild millet, wild rice, softstem bulrush and some other plants of less value to waterfowl.

The north marsh contains many of the same plants but with a different relative abundance. In order from most prevalent to least the north marsh contains pickerelweed, smartweeds (P. arifolum and P. sagittatum), wandering jew, spikerushes (Eleocharis sp.), rice cutgrass, sedge (Carex sp.), and dotted smartweed. Less abundant species include beggartick, cattail, marsh mallow, Saggitaria sp, millet, and wild rice. In the north marsh there is also some invasion of shrubby species such as willow and red maple. Black ducks are the major species using the north marsh although good numbers of woodies use the edge between the marsh and swamp. Geese also use this marsh and the river adjacent to it as one of their favorite resting areas. Waterfowl seem to use this area later than the east marsh, with most use coming during the period January through March.

The Presquile swamp is an excellent example of a pristine river swamp environment, becoming so scarce in this area of Virginia. Trees are mostly excellent mast producers including black gum, water tupelo, ash, ironwood, yellow poplar and some oaks. Two large creeks (Deep Creek and Little Creek), enter the swamp and during the fall and winter large numbers of mallards, black ducks, and woodies are always seen in them. There are smaller open areas throughout the

swamp and these also receive heavy usage by ducks.

Most of the tree canopy is completely closed over and very little sunlight hits the forest floor. This means that no forbs or legumes grow here and the very large island deer herd is forced to rely on the refuge cultivated crops for 90% of their food. After a cruise is made of our timbered areas we plan to cut small patches in the swamp to encourage growth on the forest floor and possibly take some of the pressure exerted by the deer off the cultivated corn, wheat, and fescue which is needed to feed the goose flock.

Cultivated crops produced lower yields this year due to the prolonged drought. We have 239 acres in cultivation and grow mainly corn, wheat, buckwheat, ryegrass, fescue and clover. All farming is done by refuge personnel due to the necessity of keeping all food produced on the island in the fields for the geese. From October through March some geese can usually be seen on the farm fields; the exception being during periods of "moonlight nights" when the geese feed on the fields by night and rest in the river channel and marshes during the day. All corn had been eaten by March 10 this year and it marked the first time that the goose flock consumed all corn without having to knock down the first stalk for them. The wheat browse never was eaten to the "bare ground" state that it had been in other years; possibly because it had been planted early, received good rain and made lush growth before the geese hit it. The flock utilized our fescue pastures to a much greater degree in the spring of this year than in times past. This autumn the geese hit the wheat browse at an earlier stage of growth (again due to the drought) and had succeeded in consuming about 70% of it by the end of the year. Corn is still abundant due to a relatively mild fall, and should last the geese into March again this year.

II. WILDLIFE

A. Migratory Birds

1. Canada Geese

We were hosting 10,000 Canada geese as 1970 began. By February 1 this number had dropped to 7000 as some of the birds began to spread off the refuge coinciding with the end of hunting season. We continued to hold a population of about 5000 through the third week in March, when there was a large northward migration. As of April 4 there were only a token flock of 200 geese remaining.

First geese of the fall were 8 seen on September 28; the same date as last year. A very slow steady buildup to 7000 was noted by November 30. As of December 31 we had 8000 Canadas compared

to 10,000 in 1969 on the same date. The goose flock spent more time on the refuge green browse this fall than last; and as previously noted had consumed about 70% of the wheat by years end. As usual they used the privately owned Curles Neck swamp and marsh immediately west of the refuge a great deal, particularly as a roosting area. Each evening about dusk large numbers of geese and ducks could be seen leaving refuge covers and flying to Curles Neck; only to return very early the next morning.

2. Blue geese and snow geese

The normal complement and ratio of 200 blue geese and 25 snows were feeding in refuge fields by the end of the year. They first arrived on October 28 which is about the same as last year. This high ratio of blue geese to snows and their habit of field feeding indicates that the lesser phase of snow goose makes up Presquile's population.

3. Mallard

In the past few years mallards have increased at Presquile and are now the species with greatest peak numbers and use days. They reached 9100 late in December which is almost as high as last years record of 9500. Favorite haunts of the mallard are deep creek, little creek and occasionally the farm fields during periods of bitter cold weather. One such time this year was on December 31 when large numbers of mallards and blacks were seen feeding right along with the geese in the corn fields.

4. Black Duck

Peak numbers of blacks in 1970 came during the week of December 27 when we had 4750, this number is significantly higher than last years peak of 3500. Blacks use for the most part the same refuge areas as the mallards; but tend to use both small marsh units to a much greater degree. After hunting season ends early in January most mallards disperse quickly from the refuge, but a much larger percentage of the blacks remain. This is very evident while we are banding; mallards make up 75%-80% of our catch in January while blacks make up 90% of the catch from there on through the end of the trapping season. One brood of 6 blacks was produced on the refuge; none were produced in 1969.

5. Pintail

Late in December 1250 pintails were seen in the east marsh. This small area is normally the only place on the refuge where pintails gather. The number seen this year represents a slight increase over the peak in 1969.

6. Wood Duck

The woodie is third-ranked in use-days and peak numbers at Presquile; and is the only duck present in significant numbers in the summertime. Our fall peak of 3425 in December was much higher than last years 2000. Woodie production was up 33% to 90 this year. All nesting was in natural cavities although 65 boxes are available on the refuge. A limiting factor on duck production is the presence of large numbers of snapping and yellow-bellied turtles in our swamp creeks and marshes. One trapper got 750 lbs. of turtles from the east marsh and little creek under special use permit this year. It seems to have helped raise our woodie production since all broods observed and most adult activity was noted in these areas throughout the summer.

7. Greenwinged teal

The biggest percentage increase in any duck species was by greenwinged teal. The high number seen on the refuge in 1969 was 60; while this year 1200 were counted in December, mostly in the swamp creeks.

8. Other dabblers

There are always a few bluewinged teal that pass through Presquile early in the fall. The high number seen this year was 50 late in September and all bluewings were gone by October 18. American widgeon are seen sporadically with the high count of 40 being made this year in January. All widgeon are usually seen in the river channel and they are most prevalent in late winter and early spring. No shovelers were seen in 1970.

9. Diving ducks

We always see an interesting variety of divers at the refuge; but none are seen in great numbers. They are usually noted in the river channel; but do not stay for long because we lack submergent vegetation on which they can feed. Species recorded this year include ringnecks, scaup, ruddys, bufflehead, and common mergansers. The mergansers are the most common and the only species that is seen on each count throughout the winter; there are abundant small fish for them to consume in the river waters.

10. Other species

Whistling swan were recorded again this year on two separate occasions in December; with a pair being sighted each time.

Coots increased this year and 150 were counted late in

November; mostly using the east marsh and little creek.

For the second straight year a new record count for all duck species was made. Late in December 19,100 were recorded; beating the 15,700 counted in 1969. We must have had nearly all the ducks in the area on the refuge at that time; since most comments on the duck season by local hunters were to the effect of how poor it was. Of course most of them also seemed to feel that most ducks were "still up north" and that we needed some real cold weather to "bring 'em on down". Each year as soon as duck season closes a dispersal of many thousands from the refuge is noted; and I suppose then the hunter feels that he has finally gotten enough nasty weather to drive 'em down from up north.

11. Doves

We began 1970 with a low population of about 50 doves. They built up to 300 in early February and fell back down to 25 by late April. An increase to 400 was noted by the middle of August and there followed a gradual decrease to about 30 at the end of the year. This is just about normal fluctuation and numbers of doves at this refuge; and allowed us to band a good number while they were abundant (see sec V A). Dove hunters in this section of the state reported a generally good season with large numbers of doves available.

12. Other migratory birds

Several interesting observations were made in this category. An pair of upland plovers were seen on fescue field #7 on April 21; this species is on the refuge bird list as "accidental". A flock of 15 glossy ibis was seen winging its way from the ferry landing to the east marsh on July 6; the first recording of this species at Presquile. Other additions to the refuge bird list include the white ibis, Louisiana heron, Florida gallinule, and northern phalarope.

B. Upland Game Birds

1. Bob-white Quail

We have had an increase in quail over the past couple of years and in 1970 averaged 50 in population. They were in three large coveys at the end of December. The refuge seems to have good quail production each year but most of the young fly the narrow (700 foot) river channel and leave the island by late fall. This year we got a donation of wild game bird mixture seed from the local state game warden and planted it in strips in field #8a as quail feeding and nesting cover.

2. Turkey

An average of 20-25 turkeys are present on Presquile. One brood of four young was observed this year on the edge of the agricultural fields and swamp. Our high ratio of male to female turkeys (3:1) is not conducive to high production of this species. Food for turkeys is abundant in the Presquile swamp and fields including dogwood, wild grape, alder, paw paw, hackberry, black gum, panicums, hornbeam and of course corn, buckwheat and fescue. An unusual observation of fifteen turkey together was made in November while on a boat trip into deep creek.

3. Pheasant

Curles Neck farm across the river channel from us raises pheasants each year. Our birds undoubtedly have flown the channel from this source. An interesting note, however, is that a very small young pheasant was caught in one of our dove traps early in September indicating at least one brood produced on the island; the first record of such an occurence. A population of two hens and one cock pheasant is now present.

C. Big Game Animals

Our only big game animal is the white-tailed deer. For many years the refuge has had a deer herd that has been out of balance with its natural food supply The island deer now subsist almost entirely on the cultivated crops grown to sustain the goose flock. This year about 20% of a below average corn crop fell to Mr. Odocoileus virginianus ; as well as large amounts of buckwheat, fescue and soybeans.

For the past four years we have had a hunt allowing bow and arrow only in the hope of reducing the herd and also, of course, to provide some recreation for local archers. The hunt always succeeds in drastically reducing the herd for a short time as deer either are shot or (more often) swim the channel from the island to the mainland. Then after the state gun season opens in November each deer swims back to the island and brings a friend with him.

In January we estimated (from counts in the farm fields after dark) about 150 deer on the refuge. Winter losses gave us 140 by fawning season which added another 35. Fawns were unusually late this year. In August we had thought there to be low production; but we kept seeing spotted fawns well into October. The bow hunt eliminated 26 killed; while another 40 left the island. By the end of December the deer herd was back to about 125 animals; an insignificant change from the previous year.

A short hunt allowing shotguns may be in the offing for next fall; as we would like to level the herd off to below 100 deer. More about this under section VI D. Hunting.

D. Fur Animals, Predators, Rodents, and Other Mammals

Raccoons are at a population level of 150; this population appears to be stable. Although present over the entire refuge they have only given us trouble near our banding traps in the swamp. We have found that if we confine our trapping to the use of our large swim-in traps at the end of the creeks we can cut predation from raccoons and hawks to almost nothing. Trouble begins when we use our small wire traps on the islands and creek banks. Since we can reach our banding quotas without using the small traps and practically eliminate predation; this is the route we have taken.

The striped skunk is common on our area and seems to be even more so around our buildings and the residence. About 30 skunks would be a close estimate of their numbers. On December 15 we saw one that was almost entirely white, the only black being between his forelegs.

Opossum are present but quite low in number; we estimate there to be 15.

Groundhogs are moderately abundant on the field edges and river banks (about 50). At one time groundhogs were a serious pest on the island and a control program was initiated in 1964 which was quite successful. The only control we now employ is to occasionally shoot them when the opportunity presents itself-while we are on other routine duties. About 20 were eliminated by shooting this year.

Red fox are present on the island; we have never seen grays although they are common on the mainland. Our one fox family again produced a litter of pups in the groundhog hole in the north end of field #3. The young usually leave the island by fall; three were produced this year.

Cottontail rabbits continued at a low population level probably due to predation by our foxes and hawks. Observations were a bit more frequent this year and our best estimate is 25 rabbits on the island at the end of the year.

Grey squirrels continued to be numerous, fat and sassy. Next to the deer, they are the biggest competitors with the geese for the corn crop. They also consumed a very large percentage of the pecans on the trees near headquarters this fall. A stable population of 200 squirrels is present in the hardwood swamp, field edges, and near headquarters.

Muskrats increased slightly this year to about 250, which is not a large population on the available habitat of 600 acres. Besides having houses in our two marsh units, many muskrats also live in the swamp creek banks. Our population estimate is based on house counts in our marshes with a factor added for our estimated creek bank population.

A family of beavers maintains a lodge in a lake across the east river channel from the refuge. They swim back and forth across the channel as is evidenced by cuttings in the east portion of the refuge swamp.

Otter, mink, and weasel are present on the area but no direct observations of these animals were made in 1970.

E. Hawks, Eagles, Owls, Crows etc.

One adult bald eagle was occasionally seen this spring and one immature was occasionally seen this fall. This is just about the same degree of eagle use as we had in 1969. No nests of this species are on the refuge nor do we know of any in the vicinity. Bald eagle numbers have declined in this area as they have elsewhere; the refuge used to host half a dozen in prior years.

The red-tailed hawk and the red-shouldered hawk are our most common raptores. They were present in about the same numbers this year as last. As mentioned previously they can give us trouble preying on ducks if we use small wire traps; so we have gone to using much larger ones exclusively. Other hawks seen in 1970 were the marsh hawk, sparrow hawk, and sharp-shinned hawk.

Another abundant predator at Presquile is the barred owl. They are occasionally seen on boat trips up the swamp creeks; but their presence is best made known by their mournful cry heard on summer evenings from headquarters.

Osprey have been seen with more regularity this year; particularly in the spring. No nesting is done on the refuge or in the immediate vicinity.

Both the common crow and the fish crow are found on the refuge. Populations of these species were consistent with those of the past few years; usually between 25 and 60. They occasionally give us a little trouble by pulling up the young corn when it is first coming up; but never do extensive damage.

F. Other birds

A colony of bank swallows continued again this year to use the steep clay banks bordering the ship channel. This colony is the only one known within a 100 mile radius of the refuge.

G. Fish

This year for the first time we made an effort to estimate the amount of recreational fishing done in the proclamation waters surrounding the island. It turned out to be considerable and most fisherman caught quite a few; mostly catfish. Other species caught included yellow perch, striped bass and carp. Comments from local people had been heard to the effect that the fish tasted bad because of the river pollution. Never one to take tales at face value; the manager cooked up a mess of catfish one evening in June and partook. They tasted like any other catfish. The commercial fisherman that run the river with gill nets send their fish to other markets because the people locally won't eat them from the river.

H. Reptiles

Snapping and yellow-bellied turtles abound in our swamp creeks and marshes; these are a limiting factor on wood duck production. One trapper took 750 lbs. of turtles from the east marsh and little creek this year and we hope to expand this trapping activity next year.

Common water snakes are numerous in our swamp creeks and some grow impressively large. Although cottonmouth moccasins are very rare, one was seen and positively identified this year on the west channel river bank. Green snakes and common garter snakes are present in small numbers in the farm field edges and around the farm buildings.

I. Disease

None evident.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

We try to accomplish all we can in the way of development and maintenance work within the constraints of manpower and budget. The following is a list of major maintenance, development, and rehabilitation projects.

1. Ferry system A cable operated ferry run by refuge personnel runs from the mainland near Bermuda Hundred across the main ship channel to the island. As might be expected; this is maintained in the best possible condition we can afford. This year we painted the entire superstructure; replaced the 3/4" cable three times, the rollers twice , and the sheaves and bullwheel once; replaced the engine muffler, carburetor, and differential gears; put in a better horn system; and erected new signs for pilings at either side of the ship channel marked "Caution - Underwater Cable Crossing". We also replaced the boards which serve as side bumpers when the ferry is guided past the piling clusters; and cleaned the loose river mud out from the ferry slip on the mainland side several times using refuge equipment.

2. Roads and Trails The access road to the refuge through Presque Isle Farm and the road from the ferry to headquarters on the island were graded twice. This spring if we can afford it we will have some gravel spread on at least the access road. Heavier public use this year has created more holes in this road and the gravel should pay for itself shortly in less maintenance required.

3. Buildings and Facilities

In Quarters #44 the living room and one bedroom were painted; the furnace was cleaned and checked; a 220 volt electric line was installed; and the elements in the hot water heater were replaced.

The old cemetary near the residence was cleaned up and all the old monuments that had fallen over (deer knock them over when rubbing their antlers on them) were permanently mounted in place using pointing mastic donated to us by a monument firm in Petersburg. The old cemetary with stones dating back to 1797 just mught be good for a few RBU's.....!

Our entrance sign was moved from its position on the island right at the ferry landing to a point about 30 yards away where the view of it is unobstructed by power poles and shrubs; and where it can be seen from the river or the opposite shore. A stone base was constructed under contract using granite stone acquired locally and including the concrete footing. The total cost for the base including all materials and labor was $595.00. I feel we have one of the nicest looking sign bases that I have seen and also that we got a very good price for the work. We also purchased another entrance sign which we mounted opposite the original; giving us a double-faced sign.

4. Banding Facilities

This year we repaired the two large wire traps at the ends of deep creek and little creek using new posts and wire where needed.

We also spent quite a few days cleaning trees out of the main creeks so the boat could be taken to the traps for banding. The tidal action in the creeks erodes the bank gradually and eventually the trees that are on the creek edge fall in; blocking our travel.

5. Nature Trails

We started to create two short wildlife trails late in the year; one in the southeast corner of the island and one leading into the swamp from the north gate in the deer fence along the west channel bank. These trails, which we hope to have ready in the spring of 1971, will wind through all representative types of habitat found on Presquile. The visitor will be given a leaflet when he arrives and the narration in the leaflet will correspond to numbered posts on the trail. This way we can keep the trails as free as possible of artificial signs, stations etc. and yet still explain the refuge habitat and management work to the visitor.

6. Picnic Area

The picnic tables in the large grove of trees near headquarters were all cleaned, sanded, and given a fresh coat of shellac. Two new charcoal grills were purchased for this area as well as new waste receptacles.

7. Equipment Purchases

The following equipment was purchased during the year:

(a) A Marquette power king battery charger.
(b) A Mercury model 110 9.8 HP outboard motor
(c) A Mercury model 800 80 HP outboard motor
(d) A Carousel 860 slide projector
(e) A Tee Nee model 1050 boat trailer
(f) A "Little Rhino" 3 point scraper blade
(g) Two new tires for the 1966 Plymouth station wagon

B. Plantings

1. Aquatic and Marsh Plants

None.

2. Trees and Shrubs

None.

3. Upland Herbaceous Plants

The Chester office of the USDA Soil Conservation Service

donated 10,000 american beachgrass plants to us and we planted them on a badly eroded bank on the southwest island corner bordering the James River ship channel. Mag amp fertilizer (8-40-0) was applied to the bank; a donation from Back Bay National Wildlife Refuge. Later in the year the SCS also came up with 1000 free plants of reed canarygrass for us and these were also put on the 100 yard x 25 foot bank. Survival of the beachgrass was about 50% and this encouraged other native grasses and shrub species to start on the bank. It is too early to tell about the survival of the reed canarygrass.

It appears that the bank erosion in this area has been cut down to practically nothing since the vegetative cover has become established. The only erosion at present is at the very bottom of the bank in conjunction with an extremely high river tide.

4. Cultivated Crops

Corn - 65 acres
Wheat - 56 acres
Buckwheat overseeded with ryegrass - 17 acres

All farming is done by refuge personnel. Our program in 1970 was similar to previous years with slightly different percentages of the various crops grown. All of our cultivated land is planted in alternating strips of corn and wheat to conform to the land contour with the exceptions of field #5x and a narrow strip in field #2c which were planted to buckwheat and ryegrass.

All land in cultivation was plowed this year. Fields #5w, 5y, 2a, and 2c were planted to soybeans and plowed under in July to provide green manure to the soil. These same fields were then planted to winter wheat in September.

Liming was accomplished at the rate of 1 ton per acre on fields 5w, 5y, 2a, and 2c this year. Soil tests taken in February and run by the lab at VPI in Blacksburg, Va. indicated the need for lime on these fields.

Fertilizer and chemical treatments of croplands were as follows:

Corn land - 350 lbs./acre of 6-12-24 after plowing and discing. At germination we applied 100 lbs./acre Nitrogen along with 2 lbs./acre Atrazine for weed control.

Soybeans (green Manure) - 50 lbs./acre Nitrogen at time of planting.

Wheat - 500 lbs./acre 10-5-8 after soybeans were plowed under and land disced.

Buckwheat and ryegrass - same fertilizer as wheat.

Production on crops this year was not as good as in 1969 due to the drought. Another factor was the widespread southern corn blight, which attacked mainly one species of corn resulting in negligible production of this variety.

Corn production averaged 60 bushels per acre a decrease from 100 bushels per acre in 1969. Varieties planted were as follows:

DeKalb XL-45, which is a low growing variety and usually the most productive at Presquile, produced practically nothing due to blight and drought. It was planted on fields #5z and ½ of field #2b.

Pioneer 3048 was planted on ½ of field #2b and ½ of field #2d. It produced very well.

Pioneer 309C was planted on ½ of field #2d and field #8a. It also produced very well; being blight resistant and planted on "bottom" fields with more soil moisture.

Wheat browse planted in September was spotty due to poor germination. After some good rain in mid-October we replanted about 20 acres in fields 2a and 2c and this came up very well; unfortunately the geese had arrived by this time and the newly planted wheat did not last long after they hit it. We planted Blueboy variety of wheat this year.

Buckwheat produced a fair crop for the early geese and the ryegrass which was overseeded on these fields made excellent green browse throughout the winter.

In addition to our annually cultivated crops, we have 93 acres of permanent pasture on the island. The pasture is mostly fescue, with some ladino clover in the lower lying fields. All permanent pasture is on land that is subject to erosion if it were row cropped. This spring for the first time in many years the geese made moderate use of the fescue as green browse. Generally speaking at Presquile wheat is the preferred browse. Another important function of the fescue pasture is to provide a "buffer" between the deer herd and other refuge crops. Stomach analysis of deer shot during our bow hunts indicate that fescue (along with corn and buckwheat) forms the bulk of the herd's diet.

We have two small stands of pure ladino clover in fields 4 and 7a totaling about 6 acres. Field 7a is in a shallow depression that had been row cropped previously but never produced as well as other fields. Ladino clover was sowed in February at the rate of 5 lbs./

acre and we now have an excellent stand. Field #4 is on a point at the southwest island corner and has been in clover for several years; we still have an excellent stand in this field. Clover was re-inoculated in field #3 (for pasture) at the rate of 2 lbs./acre and a fair stand resulted. We have found that in most fescue fields the clover is crowded out very fast unless it is closely mowed and receives plenty of moisture.

Neither the permanent pasture nor the pure clover fields received any fertilizer this year; but the newly seeded clover field (7a) received 2 tons lime/acre. The pastures have not been fertilized for a number of years but the soil tests show good nutrients present and they grow extremely well throughout the season; necessitating frequent mowings.

C. Collections and Receipts

Corn, wheat, buckwheat, ryegrass, ladino clover, and soybean seed was purchased this year for planting in refuge fields.

We had 75 bushels of shelled corn left over from this years banding activities; and picked up 75 more bushels from Back Bay National Wildlife Refuge for use as bait during the 1971 banding period. Usually we harvest our corn for banding from our own fields; but this year the lower corn production and lack of an interested farmer to pick the corn for us prevented this procedure.

D. Control of Vegetation

Jimson weed is the number one pest plant in the refuge fields. I have never seen it grow more robust anywhere. To control it in the corn fields we applied 2 lbs. of Atrazine per acre at germination time, mixed in with Nitrogen. This resulted in excellent control. In the soybean and wheat fields we plowed the beans and disced prior to wheat planting. This did not produce as good control as normally it does; because the dry weather allowed the Jimson weed to germinate but held back the wheat; so much of it lasted until the first killing frost in October.

Johnsongrass is also common but is limited to spotty infestations in the fields and along the deer fence. Treatment was by spraying Dalapon (5 lbs. a.e./acre) in June and discing at other times throughout the growing season. Very good control of Johnsongrass resulted.

We had approval to treat corn fields with 2,4-D for broadleaved weed control but did not need to because the Atrazine did such a good job.

E. Planned Burning

We have an approved burning plan calling for burning our two small marsh units on an every other year basis. Several attempts were made this year to burn the north marsh, but we never could get the fire to carry. We tried in January, February and again in December. The main problem seems to be that while a lush growth of vegetation is present in summer and fall; it remains too green to burn until very late in the year. Then when it finally dries out enough along about January the waterfowl have eaten it down so that you have "clumps" that burn but will not carry to the next clump of vegetation. The marshes really need a burn to control invading shrub species but the conditions that will allow a burn on our marshes are evidently so specialized that we will have to be just lucky to catch it at the right time.

F. Fires

None.

IV. RESOURCE MANAGEMENT

A. Grazing

None.

B. Haying

None.

C. Fur Harvest

None.

D. Timber Harvest

None. The area forester visited us during the year to make plans for a timber cruise in our swamp; this will probably result in recommendations for either a commercial harvest (not likely) or clearcutting some small patches throughout the swamp to open the tree canopy and allow some vegetation to begin growth on the forest floor.

E. Commercial Fishing

Several commercial fisherman run fyke nets and traps in the proclamation waters surrounding the island. Catfish and perch are the main species caught; these are shipped to New York and Chicago markets since most local people will not eat them due to the river pollution.

F. Other Uses

One special permit was issued to Ronald Blaha to trap snapping and yello-bellied turtles in our swamp creeks and marshes. His catch was about 750 lbs., all from little creek and the east marsh. Increased wood duck use and production was noted in these areas and it is hoped he will try his luck again next year.

V. FIELD INVESTIGATION AND APPLIED RESEARCH

A. Banding

The following table illustrates our banding accomplishments in 1970.

Species	Quota	Banded 1970
Canada Goose	300	79
Mallard	as can	431
Black Duck	500	528
Wood Duck	as can	44
Pintail	as can	5
Blackxmallard hybrid	-	9
	Total waterfowl banded	1096
Doves	200	346
	Total all species banded	1442

All waterfowl were banded during the post season period. Of the doves 118 were banded post season and the remainder from June to September.

Canada goose banding was the only disappointment this year. During the hunting season we could have made many cannon net shots; but we can't do any in-season banding. As soon as the hunting season closed (January 24) most geese spread off the refuge to the surrounding plantations. Most of the flock returned to using the refuge fields early in March and we made our only net shot on March 15, a Sunday morning. On two other occasions we had enough geese on the site for a shot; but one time a helicopter came over just prior to when we were going to shoot; and the other time deer had stepped on the charge wires breaking them off so we had no circuit. We hope to do better in 1971 but again we have a late hunting season (closes January 22); so we will hope we are lucky.

The larger wire trap in deep creek caught by far the largest number of ducks this year. On one weekend in the middle of January we caught over 300 ducks in this trap. The trap in little creek also produced well. We started out using several small portable traps in addition to the large ones, but stopped using them when we

began to get some raccoon and hawk predation, since we felt we could do well without them. One of the biggest surprises with duck banding this year was finding a place where we could band some wood ducks. We put a small portable trap on a sandbar just off the southeast island shore during a hard freeze when the river was the only open water. For the next week the trap caught nothing but wood ducks. When the weather again turned mild, we stopped catching woodies. For some reason they would go in a trap at this location whereas they are very rarely caught back in the swamp traps.

For dove banding we used about 20 small traps and cracked corn and wheat for bait. Our best success was realized in the spoils area during the post season period and near field 8a during the summer.

B. Vegetative Transects

Two transect lines have been established in the two marsh units at Presquile. The north marsh line was run in 1969 and the east marsh line was run this year. The purpose of the vegetation transects is to provide an inventory of our plant species and relative abundance of each; as well as to set up a basis for measuring results of marsh management practices such as prescribed burning.

We ran the east marsh transect on October 7 and 8, making 66 stops at 10 pace intervals and using a five-point sampling method. The following table summarizes the results.

Species or Group	Number	Per Cent
Rice cutgrass (Leersia oryzoides)	72	18.2
Arrow-arum (Pettandra virginica)	68	17.2
Wandering jew (Aneilema sp.)	52	13.2
Beggartick (Bidens sp.)	49	12.4
Pickerelweed (Pontederia cordata)	24	6.1
Dotted smartweed (Polygonum punctatum)	16	4.1
Cattail (Typha sp.)	8	2.0
Wild millet (Echinochloa crusgalli)	8	2.0
False loosestrife (Ludwigia palustris)	7	1.8
Softstem bulrush (Scerpies validus)	3	0.8
Wild rice (Zizania aquatica)	2	0.5
Microstegium vimineum	2	0.5
Day flower (Commelina sp.)	1	0.2
Arrowhead (Sagittaris sp.)	1	0.2
Marsh mallow (Hibiscus palustris)	1	0.2
Unidentified	3	0.8
Bare ground	78	19.7
	395	99.9

Otto Florschutz, area biologist, ran the transect with refuge personnel and made identification of the more difficult species.

C. Wood Duck Nest Boxes

A total of 65 artificial nest boxes for wood ducks are in place throughout our swamp and marshes. Twenty five are wood boxes and forty are aluminum; all conform to FWS specifications. The wood boxes were erected in 1967 and the metal in 1968. We have never had any wood duck use in these boxes, although they look to be in excellent locations. There is a population of about 150 wood ducks present all summer, and as mentioned earlier we did have 90 young produced to flight stage in 1970, all from natural cavities. I have heard that in other areas boxes have been in location for up to five or six years before ducks began using them. We will again place fresh nesting material in all boxes for the 1971 season; and also will try a technique of putting a bit of white paint around the entrance hole of the box since this has encouraged use in other areas. Of course there is also the good possibility that the Presquile swamp contains enough dead and decaying trees with suitable cavities for our breeding wood duck population; and that these are simply preferred to the boxes.

D. Dummy Nest Study

Our wildlife inventory plan provides for running a survey using the "dummy nest" technique on an every other year basis to give us a continuing index to predator activity. On March 20, 1970 two fresh eggs were placed out at all transect stakes that had been used in the three previous years of the study - 1966, 1967, 1968; with the exception of six stake locations that had been destroyed by erosion during the flood of August 1969. The stake sites were revisited on April 24, 1970 to determine the condition of the eggs. The following table shows this years results as compared to the three previous year.

	1970	1968	1967	1966
Total Nests	69	75	75	75
Number intact	6	40	10	33
Number destroyed	63	35	65	42
% destroyed	91%	47%	87%	56%
of total destroyed, percent attributed to:				
Red Fox	39%	22%	90%	8%
Raccoon	35%	16%	5%	7%
Skunk or Opossum	14%	2%	5%	6%
Crow	12%	60%	-	79%
	100%	100%	100%	100%

The wide variability in results from year to year suggest some difference in methods used in the study. In 1966 no attempt was made

to cover the eggs and could account for the high rate of crow predation. In 1967 the eggs were covered but were placed right at each transect stake, possibly accounting for the high red fox predation. In 1968 and 1970 the eggs were placed out about five or six feet from each stake under the nearest available cover. They were completely covered in 1970 and partially covered in 1968. It appears that crows will get a large percentage of the eggs if only a portion of the egg is visible. In the future we must use the exact same technique from year to year if we are to get meaningful data on predator trends. We will therefore completely cover the eggs from view hereafter, thus minimizing crow predation and enabling us to get a more accurate trend of fox, raccoon, skunk, and opossum populations.

V. PUBLIC RELATIONS

A. Recreational Use

Even though Presquile is located near an urbanized area with a population of about 500,000 within thirty miles; public use has been quite low since the refuges activation. The most obvious limiting factor on visits by the public is the necessity of transporting every visitor to the island by means of the ferry. Presquile's small size and character presents a situation where there is a definite maximum number of visitors desired. Four hundred acres of farmland, high sandy woods, and swamp edge is the total amount of land that 95% of the visitors traverse. If we bring a group of boy scouts, for example, to the island on a Saturday morning; they typically trek around these 400 acres after being given a short talk by the manager about the refuge and its management. This first group will have the opportunity to see a very good variety and quantity of wildlife, from waterfowl in season; to deer, wild turkey, fox, hawks, and numerous other small mammals and birds. All this is within sight of the plant smokestacks of industries in Hopewell, where the air pollution problem is, to say the least, acute. If a second group would visit on the same day, they might see a few geese if they had returned to the fields; but little else. Subsequent visitors that day would see no wildlife, which had long since retreated to the recesses of the swamp. Optimum, rather than maximum, public use therefore is what we should strive for, recognizing that at present almost 100% of our recreational use is wildlife oriented, and that invariably each visitor goes home after having seen more wildlife than he can remember having seen before.

Facilities for interpretation and visitor comfort are minimal at present. We do have a nice picnic area with four large tables, three charcoal grills, waste receptacles, and running water in a large grove of trees near headquarters where the old Civil War era house

used to stand. The nearest rest room to this area is in the maintenance shop, about 200 yards away; and there is no shelter at the area.

The first interpretive facilities to be developed will be the two short wildlife trails mentioned earlier under physical development. Our thought was to provide trails which would be left in as natural a state as possible, having only numbered posts corresponding to those in a leaflet given each visitor upon his arrival. One trail will be in the southeast island corner and cover a variety of habitat including high sandy woods, marsh edge and swamp; while the other will parallel the west river channel through the swamp. The wildlife trails should be ready for use in the spring of 1971.

Another recreational use which should be mentioned is our annual bow hunt for white-tailed deer. Area archers cannot wait for this yearly event and they all seem to enjoy it immensely. Participation this year included 541 hunter-days and a total of 26 deer estimated killed. I do not know the national average, but at Presquile at least a dozen arrows are shot for each deer hit; the scout troops that visit on weekends subsequent to the hunts always gather beaucoup de spent arrows.

B. Refuge Visitors

Total visitor use increased this year from 1188 in 1969 to 2378. We must have about the most accurate visitor data of any refuge, since each one enters on the ferry. Probably with present staffing 3000 would be the desired number of annual visits; although 5000 could probably be accommodated with more personnel before the quality of each visit suffered as mentioned earlier. Organized groups and official visitors are as follows:

Date	Name	Where From	Purpose
01-01-70	Joe Bellamy Va. State Game Warden	Chesterfield Co. Va.	Help with patrol
01-24-70	12 members of the Richmond Natural History Society	Richmond, Va.	Bird Watching
02-04-70	Harold Muddiman and John Sheally	Petersburg Progress Index	Feature story on Refuge
03-03-70	St. James Kindergarten 27 children and teachers	Hopewell, Va.	Tour

03-07-70	Math and Science Center Ornithology Class	Richmond, Va.	Tour
03-09-70	USGMA Don Daniels	Williamsburg, Va.	Visit
03-09-70	Jim Chudoba USDA, SCS Joe Vaden	Chester, Va.	Bank Erosion
03-11-70	Petersburg H.S. Biology Class - 18 students and teacher	Petersburg, Va.	Wildlife Observation
03-11-70	Cub Scout Pack 135 29 Cubs and Leaders	Matoaca, Va.	Wildlife Observation
03-25-70	George Wiseman Refuge Supervisor	Atlanta, Ga.	Orientation Tour
04-04-70	Cub Scout Pack 176	Colonial Heights, Va.	Wildlife Observation
04-06-70	Larry Dunkeson Ass't. Mgr. Mackay Island NWR	Knotts Island, N.C.	Visit
04-07-70	Agents Robke and McMillan, FBI	Petersburg, Va.	Stolen Motor
04-13-70 to 04-17-70	Over 100 visitors	Local Areas	Open House
04-24-70	16 members of Ettrick United Methodist Church	Ettrick, Va.	Wildlife Observation
04-27-70	20 students from West End Christian School	Hopewell, Va.	Wildlife Observation
05-15-70	34 students from Chester Intermediate School	Chester, Va.	Wildlife Observation
05-24-70	15 members of Chester Junior Women's Club	Chester, Va.	Wildlife Observation
06-04-70	Otto Florschutz, Area Biologist	Washington, N.C.	Deer Over Browsing

06-04-70	Eugene Czuhai, Area Forester	Washington, N.C.	Orientation
06-06-70	Romie Waterfield Biological Technician Back Bay NWR	Va. Beach, Va.	Visit
06-24-70	Virginia Commonwealth University, Ornithology Class	Richmond, Va.	Tour
06-28-70	24 members of Hopewell Newcomers Club	Hopewell, Va.	Picnic Wildlife Observation
07-01-70	Garland Foster, Va. State Game Warden	Prince George Co. Va.	Visit
07-08-70	Math and Science Center Class, 25 students and teacher	Richmond, Va.	Wildlife Observation
07-15-70	21 boys and girls from Camp Happy Acres	Prince George, Va.	Wildlife Observation
07-20-70	Raymond McFarland, Biological Technician, Catahoula NWR	Jonesville, La.	Visit
07-27-70	Math and Science Center Class in ecology	Richmond, Va.	Tour
08-05-70	Twenty orphans from the Petersburg Children's Home	Petersburg, Va.	Outing picnic
08-06-70	Virginia Commonwealth University Entomology Class	Richmond, Va.	Field trip
08-20-70	Dinwiddie County Wildlife Extension Course Class	Dinwiddie, Va.	Tour
09-22-70	Jim Chudoba, Joe Vaden USDA, SCS	Chester, Va.	Look over beachgrass planting

09-28-70	Don Ambrosen, former Mgr. Back Bay, NWR	West Salem, Wisc.	Visit
09-29-70	Eugene Czuhai Area Forester	Washington, N.C.	Timber Reconnaissance
10-07-70	Otto Florschutz Area Biologist	Washington, N.C.	Vegetation Transect
10-07-70	Bob Downing, Division of Wildlife Research, BSFW	Blacksburg, Va.	Possible research project
10-09-70 10-10-70 10-11-70	153 holders of permits for bow hunt	Va., N.C., Md., N.J.	Look over island prior to hunt
10-16-70	Mrs. Dollie Youkeles free lance writer	Petersburg, Va.	Story on Refuge
10-15-70 to 11-06-70	541 Bow hunters	Va., N.C., Md., N.J.	Hunting
10-24-70	John Morris, Hopewell News	Hopewell, Va.	Story on deer hunt
11-07-70	Brownie Troops, 239, 343 and 519; 59 girls and leaders	Chester, Va.	Wildlife Observation
11-10-70	Chester Intermediate School 65 students and teacher	Chester, Va.	Tour
11-13-70	Chester Intermediate School 60 students and teacher	Chester, Va.	Tour
11-14-70	Troop #90; 27 girl scouts and leaders	Petersburg, Va.	Wildlife Observation
11-16-70	Walter Stieglitz Regional Office	Atlanta, Ga.	Comprehensive Inspection
11-21-70	Cub Pack 922 38 cubs and leaders	Enon District Chesterfield Co. Va.	Wildlife Observation

11-23-70	John Tyler Community College "Outdoor Education" Class	Chester, Va.	Wildlife Observation
11-24-70	Mrs. Dollie Youkeles free lance writer	Petersburg, Va.	Story on Refuge take pictures
11-28-70	Girl Scout Troop 22 11 girls and leaders	Hopewell, Va.	Wildlife Observation picnic
11-28-70	Girl Scout Troop 89 15 cubs and leaders	Fort Lee, Va.	Wildlife Observation picnic
12-05-70	Cub Scout Pack 903 7 cubs and leaders	Prince George, Va.	Wildlife Observation picnic
12-05-70	Cub Scout Pack 932 8 cubs and leaders	Fort Lee, Va.	Wildlife Observation picnic
12-31-70	Chesterfield 4H Club	Chester, Va.	Wildlife Observation

C. Refuge Participation

The manager attended meetings and presented programs to the following groups throughout the year:

Date	Meeting or Program
01-06-70	Presented a talk and slide series to 10 ladies of the Hopewell Garden Club.
01-26-70	Presented the film "So Little Time" to 32 members of the Bermuda Optimist Club.
03-13-70	Showed the film "So Little Time" to 60 biology students at Petersburg High School.
04-07-70	Presented a talk and the film "So Little Time" to 13 members of the Hopewell Newcomers Club

04-20-70	Presented the film "So Little Time" and a talk on the relation of wildlife to the environment to 500 J.H.S. students of Chester Intermediate School in connection with "Earth Day" activities.
05-09-70	Presented the films "Out of the North" and "So Little Time" to 15 Boy Scouts of Troop 77, Kinnelon, N.J. (while on vacation)
05-11-70	Presented a talk on wildlife refuges and showed "So Little Time" to 170 students (6,7,8 grade) of Boonton Township Elementary School, Boonton Twp, N.J.
07-21-70	Attended annual meeting of the Virginia Conservation Education Advisory Group in Charlottesville.
08-24-70 to 08-28-70	Attended law enforcement workshop in Washington, N.C.
10-12-70	Presented the slide series "The Right to Exist" to members of the Bermuda Optimist Club.
10-26-70 to 10-27-70	Attended systems management workshop at Mattamuskeet NWR, New Holland, N.C.
12-12-70	Presented a talk and showed the film "Wildlife Babies" to 96 men, women, and children at the annual Enon Volunteer Fire Dept. family dinner.

Mention should also be made of the first "Open House" ever held at Presquile. We held it for five days April 13 - 17 and ran the ferry on a regular schedule for the benefit of those who could visit during the week. We had to stay away from an open house on Saturday or Sunday when most people could attend; because of the complete lack of adequate parking facilities on the mainland to take care of the multitudes who would have come. As it was we had about 120 people visit, even though several days that week were rainy and cool. All who did visit were delighted with the opportunity and we are planning on a somewhat similar venture in 1971.

D. Hunting

We held a bow hunt for white-tailed deer again for the fourth consecutive year. This year we had 8 days of hunting and allowed 85 hunters per day. Notices were placed in all outdoor columns of area newspapers during August outlining application procedures. We held a drawing for permits on September 18 from over 500 applications

received; the largest number so far. Each hunter selected got a permit for a two-day hunt and was given until October 9 to pay his permit fee of $2.00. If he had not paid by that date the permit was canceled and re-issued to another applicant. This procedure was different from prior years when each hunter paid his $2.00 upon his arrival to hunt; and was done to try to insure more participation. It worked, and we had 541 hunter-days compared to 397 in 1969. Hunting dates this year were October 15, 16, 23, 24,30, 31, and November 5 and 6. The results showed 15 deer checked in, two found dead after the hunt, and 9 estimated to have been wounded badly enough to expire later on; for a total kill of 26. This represented a 27% increase over the kill last year; but still fell far short of our removal goal of 50.

One important change in hunting regulations this year led to the increased kill, besides the fact of greater hunter participation. Prior to the hunt we placed 85 markers or "stands" throughout the hunt area near deer trails and in the corn fields etc. Each hunter was assigned a stand corresponding to his permit number; and was required to stay in the stand vicinity from sunrise to 10 A.M. ; after which he could hunt where he chose. This resulted in nearly everyone getting more shots and consequently more kills. Invariably each bowhunter would report that he had several shots; and 98% were pleased with the stand idea as an aid to the hunting and also to the safety of the hunt. Most deer hunting in this part of Virginia is done by placing the hunter on a stand; so it was not a radical departure from what most of them were used to.

Next year we may have to go to a short shotgun hunt to effectively cut the size of the deer herd; but we intend to keep allowing several days of bow hunting because it provides so much recreation for local archers, and also good publicity for the refuge. All area newspapers carried at least one article on the deer hunt; as they have in previous years.

The following is a table showing data of the deer that were checked in:

Date	Sex	Live Weight	Age	No Points
10/15	Buck	78.5	1½	2
10/15	Doe	83.5	3½	-
10/15	Buck	53.0	½	Button
10/15	Doe	92.5	2½	-
10/15	Buck	54.0	½	Button
10/15	Doe	48.5	½	-
10/15	Buck	35.0	½	Button
10/16	Buck	120.5	2½	9
10/16	Doe	86.5	3½	-

10/23	Buck	102.0	2½	2
10/23	Doe	35.0	½	-
10/24	Buck	116.5	2½	8
10/24	Doe	35.0	½	-
10/31	Doe	29.0	½	-
11/6	Buck	30.5	½	Button

Waterfowl hunting is not permitted on the refuge, but is heavy on surrounding areas. Ducks and geese became legal on the same day this year, November 14. Reports from hunters indicate that overall duck hunting was about the same as last year; i.e. poor. Goose shooting has been better than last year on areas surrounding the island. We had a very pleasant, mild fall and this probably contributed to the poor duck hunting; since there were higher populations on the refuge than in 1969. We get a few mild complaints each year that we are holding them on the refuge. Those who offer the opinion that we are "feeding them on the reservation" are invited to drop in any time to see for themselves; and this satisfies them.

The only definite data on waterfowl kill that we obtained this year was from Curles Neck, directly across the channel west of the refuge. This area is undoubtedly the single best place to hunt waterfowl in this part of the state. They hunt the area on Tuesday, Thursdays and Saturdays throughout the season. During the 1969, 1970 season the owner told me they had killed 227 geese and 260 ducks. This was not an unusually high figure for them; in fact it is a bit on the low side.

E. Violations

No cases were made this year by refuge personnel. We know of only one game violation that was committed on the refuge. On January 22, evidence was found near the north gate of field#3 where someone shot a deer from the river and carried it off by boat. We were able to determine the time of violation because it had snowed on the 21st and the blood was on top of the snow; however we were unable to get further information on the violation.

Our other violation occurred sometime between April 4 and April 6; which was a weekend. A 9.8 HP Mercury outboard motor was stolen from the area near our mainland ferry landing. It had been locked to an aluminum boat there and used in emergency situations when our other boat and motor was not available. The local office of FBI, county sheriff's office, state and federal game agents, local marinas, outboard motor service shops and dealers were immediately notified. Agents Robke and McMillan of the FBI visited the site and promised to help in every way they could; but to date the culprit has not been apprehended nor the motor recovered.

F. Safety

Presquile Refuge has never had a lost time accident since its activation date of March 11, 1953. We try to have formal safety meetings as often as possible but must admit that we did not have as many as we should have had this year. Meetings were held in February, July and December this year and informal on the job safety discussions were held frequently.

We took the following safety actions in 1970:

1. Inspected all boats to insure that each had proper flotation.

2. Created a safer deer hunt by requiring hunters to remain on stands during the early morning hours of a hunt.

3. Replenished all first aid supplies at headquarters.

4. Posted additional signs on piling cluster at either side of the ship channel warning other river traffic of our underwater cable.

5. Replaced the compressor that operates the ferry horn; giving us a larger capacity for warning other boats that we are crossing the channel.

VII. OTHER ITEMS

A. Items of Interest

1. Miscellaneous

A two page article with photographs of Presquile appeared in the September issue of Virginia Wildlife, the official publication of the Virginia Commission of Game and Inland Fisheries. Other feature articles appeared in the Petersburg, Hopewell, and Richmond papers.

An an average of every four months refuge personnel assisted the C & P Telephone Company in running a new line across the ship channel (underwater) to the refuge. This is just their regular type of rubber coated line and naturally the action of river currents and sunken objects rubbing against the line soon wears it out and the phone goes dead again. Still they do not appear interested in putting in a substantial submarine line for the short distance (700 feet) across the channel; even though they and we would not have to worry about it for years. I intend to keep bugging them about

this until they get sick of me and put one in.

We have a nice orchard near the residence on the island; with apple trees of several varieties (bore very heavily this year); pecans, persimmons, and peaches. There were only three peach trees and two of these had bore heavily in 1969. The third tree was loaded with peaches this year while the other two produced practically nothing. On June 21 we had a severe thunderstorm with high winds that broke off one of the trees close to its base. Which one was it? As you may have guessed I cried bitter tears as I hauled it away with its still green burdgeoning crop; for I dearly love peaches.

The new accounting procedures gave us all a few fits for a while at the beginning of FY 1971. Clerk-typist Mrs.Lipchak should be given a lot of credit for mastering the new and confusing (to say the least) system in short order.

On September 4 in the wee small hours of the A.M.; the stork, still another new species for our bird list made his appearance known. After the welcome sound of the ferry engine starting, a hasty trip across the channel and thence to Petersburg General Hospital (12 miles), we met the fine, feathered fellow and he presented the manager and his wife with a 7 lb. 10 oz. boy named Jeffrey Travis Daly.

Maintenanceman Luther Vick has been active during the year as Captain of the Prince George Volunteer Fire Department; and also as a special assistant to the Virginia state game warden for Prince George County, Mr. Garland Foster.

Manager Daly is a member of the Bermuda District Optimist Club and is currently serving as program committee chairman. He has also joined the Hopewell Toastmasters Club.

B. Photographs

See the following pages.

C. Credits

Text, NR forms, and photos by Daly; typing by Mrs. Lipchak.

D. Signature

Submitted by:

Paul D. Daly

Refuge Manager

Dated January 15, 1971
Approved by:

Walter O. Stoglitz

Regional Office

Assistant Regional Supervisor

1-19-71

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Presquile N.W.R. MONTHS OF January 1 TO April 30, 1970

(1) Species	(2) Weeks of reporting period: 3 days									
	1/1-1/3	1/4-1/10	1/11-1/17	1/18-1/24	1/25-1/31	2/1-2/7	2/8-2/14	2/15-2/21	2/22-2/28	3/1-3/7
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling			2							
Trumpeter										
Geese:										
Canada	10,000	9500	10,000	10,000	7500	7000	7000	5000	5000	5000
Cackling										
Brant										
White-fronted										
Snow	30	30	30	30	30	20	15	15		
Blue	200	200	200	200	200	150	100	100		
Other										
Ducks:										
Mallard	4,000	7700	6500	4000	3000	1000	300	100	200	200
Black	2,400	2900	2900	2750	2000	1500	1000	500	750	750
Gadwall										
Baldpate	40	15	15				15	25	25	25
Pintail	600	1200	1200	1000	500				30	30
Green-winged teal	10								20	20
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	500	400	600	750	750	750	300	250	250	250
Redhead										
Ring-necked			10	25						
Canvasback										
Scaup		15								
Goldeneye										
Bufflehead										
Ruddy				10	10	10				10
Other Com. Merganser	150	100	100	100	50	50	30	25	30	20
Coot	5		15	25	25	15	10			

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Presquile N.W.R. MONTHS OF January 1 TO April 30 ,1970

(1) Species	(2) Weeks of reporting period 11	12	13	14	15	16	17	18	(3) Estimated waterfowl 5 days days use	(4) Production Broods seen	Estimated total
	3/8-3/14	3/15-21	3/22-28	3/29-4/4	4/5-11	4/12-18	4/19-25	4/26-30			
Swans:											
Whistling									14		
Trumpeter											
Geese:											
Canada	5000	5000	2000	200					577,400		
Cackling											
Brant											
White-fronted											
Snow	10								1350		
Blue	50								9000		
Other											
Ducks:											
Mallard	200	100	50	10	10	10	10	10	175,780		
Black	700	500	300	50	40	20	20	20	124,060		
Gadwall											
Baldpate	25								1,135		
Pintail	25								29,095		
Green-winged teal	10			35	20				765		
Blue-winged teal					10	10			140		
Cinnamon teal											
Shoveler											
Wood	200	50	100	100	12	150	150	150	38,475		
Redhead											
Ring-necked									245		
Canvasback											
Scaup									105		
Goldeneye											
Bufflehead		17							119		
Ruddy	10	10		25					595		
Other Com. Merganser	20	15	15	15	15	15	10	10	4770		
Coot:				5	5	5	5	5	810		

(Over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	14	2	0
Geese	587,750	10,230	0
Ducks	375,884	12,330	0
Coots	810	25	0

SUMMARY

Principal feeding areas Refuge fields and marshes by geese; and swamps and marshes by ducks.

Principal nesting areas

Reported by Paul D. Daly Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species — In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: — Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: — Average weekly populations x number of days present for each species.

(4) Production: — Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: — A summary of data recorded under (3).

(6) Peak Number: — Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: — A summary of data recorded under (4).

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Presquile N W R MONTHS OF May 1 TO August 31, 1970

(1) Species	(2) Weeks of reporting period: 2 days 5/1-5/2 (1)	5/3-5/9 (2)	5/10-5/16 (3)	5/17-5/23 (4)	5/24-30 (5)	5/31-6/6 (6)	6/7-6/13 (7)	6/14-6/20 (8)	6/21-6/27 (9)	6/28-7/4 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					5					
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	10	10	10	8	8	8	8	8	8	8
Black	20	20	20	15	15	12	12	12	12	12
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	150	150	150	150	150	150	175	175	175	175
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
~~Other~~ C. Merganser	10	10								

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Presquile N W R MONTHS OF May 1 TO August 31 ,1970

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
	7/5-7/11 : 11	7/12-18 : 12	7/19-25 : 13	7/26-8/1 : 14	8/2-8 : 15	8/9-8/15 : 16	8/16-22 : 17	8/23-8/31 : 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada						2			49		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	8	8	8	8	8	8	8	8	1016	0	0
Black	12	12	12	12	15	15	15	20	1781	1	6
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood	175	175	200	225	250	250	350	350	24,975	15	90
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy											
~~Other~~ C. Merganser									90		
Coot:									10		

(Over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	0	0	0	Principal feeding areas refuge marshes
Geese	49	5	0	
Ducks	27,862	378	96	Principal nesting areas refuge swamp and marsh edges
Coots	10	5	0	

Reported by Paul D. Daly Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species — In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: — Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: — Average weekly populations x number of days present for each species.

(4) Production: — Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: — A summary of data recorded under (3).

(6) Peak Number: — Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: — A summary of data recorded under (4).

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Presquile NWR MONTHS OF Sept. 1 TO Dec. 31, 1970

(1) Species	(2) Weeks of reporting period: 5 days									
	9/1-9/5	9/6-9/12	9/13-9/19	9/20-9/26	9/27-10/3	10/4-10/10	10/10-17	10/18-24	10/25-31	11/1-11/7
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					25	100	1000	2000	3500	3500
Cackling										
Brant										
White-fronted										
Snow									10	10
Blue									25	35
Other										
Ducks:										
Mallard	10	30	45	250	250	250	400	600	900	900
Black	30	50	240	300	300	300	500	600	600	4000
Gadwall										
Baldpate										
Pintail				45	200	200	200	200	200	100
Green-winged teal						25	25	100	100	100
Blue-winged teal		15	10	50	25	15	10			
Cinnamon teal										
Shoveler										
Wood	500	800	800	600	700	1000	1200	1500	1500	1200
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										10
Other										
Coot						25	25	25	25	25

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Presquile NWR MONTHS OF Sept. 1 TO Dec. 31 ,19 70

(1) Species	(2) Weeks of reporting period 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production Broods seen	Estimated total
Swans:											
Whistling				2			2		28		
Trumpeter											
Geese:											
Canada	5000	5000	6000	7000	7000	7000	7000	8000	418,875		
Cackling											
Brant											
White-fronted											
Snow	25	25	25	25	25	25	20	20	1,430		
Blue	200	200	200	200	200	200	175	150	10,795		
Other											
Ducks:											
Mallard	4575	4575	4575	6000	3200	4150	6525	9100	306,125		
Black	3800	3800	3800	3800	2500	3000	3300	4750	240,130		
Gadwall											
Baldpate							5		35		
Pintail	1000	1000	1000	800	400	900	1250	1200	58,465		
Green-winged teal	100	600	600	600	300	300	1200	1000	33,350		
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood	2150	2150	2150	3000	2600	2050	3050	3425	204,775		
Redhead											
Ring-necked		50	50	50		5		10	1,135		
Canvasback											
Scaup							5	10	85		
Goldeneye											
Bufflehead						10	10		140		
Ruddy	10	10	10	10	10			25	545		
~~Other~~ Com. Merganser			10	15	60	75	150	80	2570		
Coot:	25	25	150	150	50	25	15	10	4005		

(Over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	28	2	0
Geese	431,100	8,170	0
Ducks	847,355	19,600	0
Coots	4,005	150	0

SUMMARY

Principal feeding areas **Ducks - east marsh, north marsh, wooded swamp. Geese - refuge fields**

Principal nesting areas

Reported by **Paul D. Daly, Refuge Manager**

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

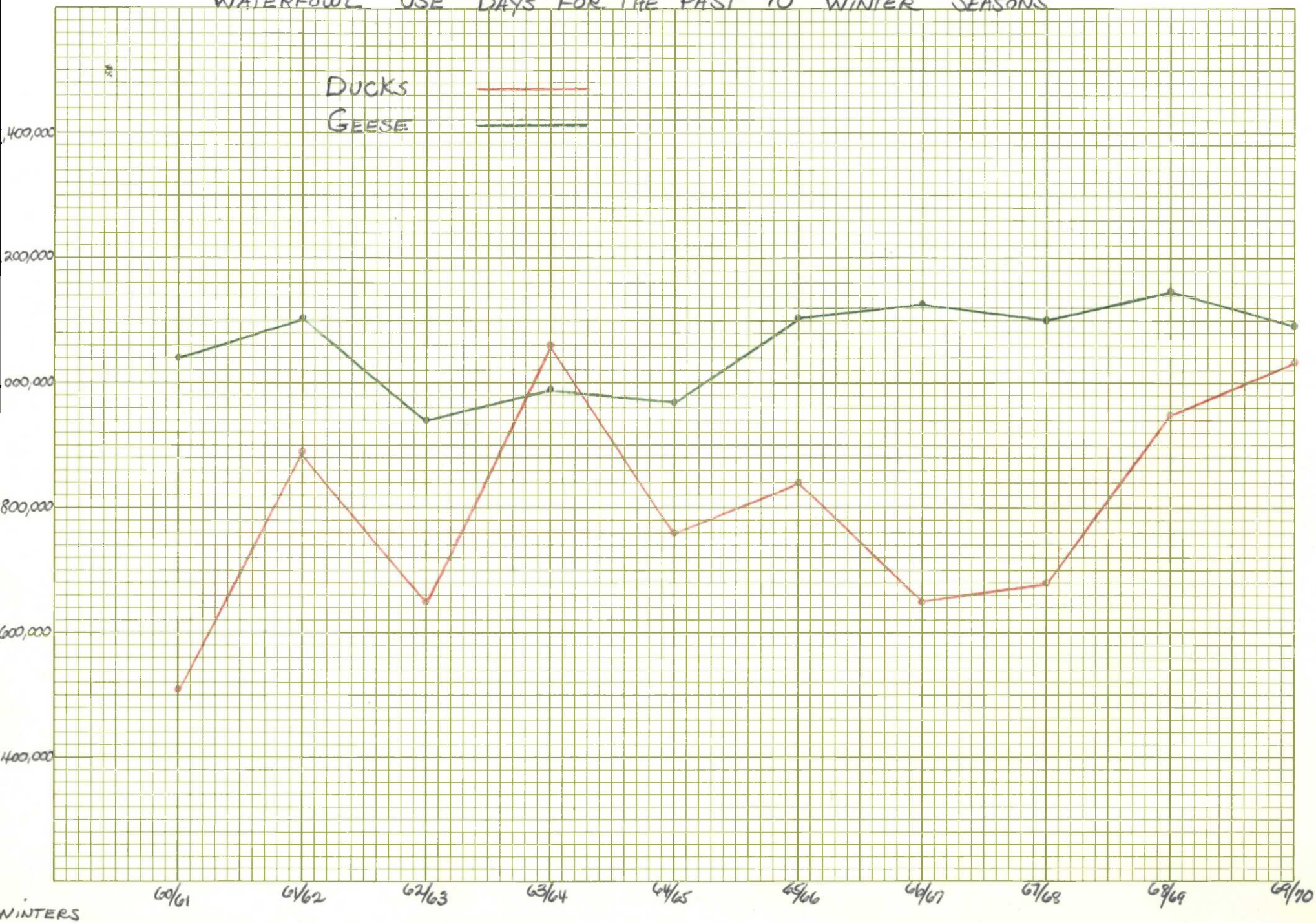
(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

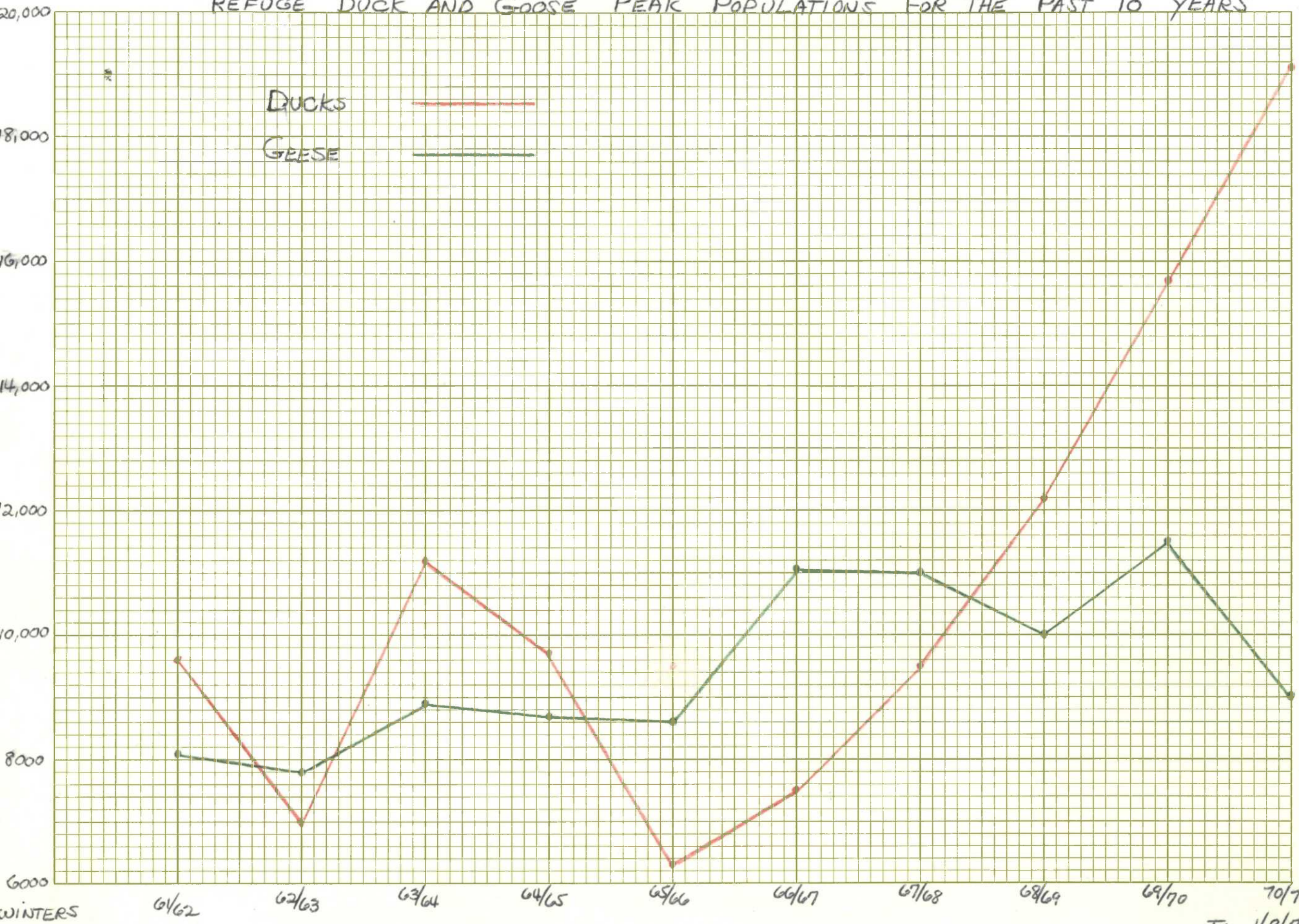
(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

WATERFOWL USE DAYS FOR THE PAST 10 WINTER SEASONS



REFUGE DUCK AND GOOSE PEAK POPULATIONS FOR THE PAST 10 YEARS



TO 1/9/71

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge Presquile N.W.R. Months of January 1 to April 30 19 70

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	20	1/1	30	2/6	16	4/30				2640
Little Green Heron	1	4/21	2	4/30	2	4/30				20
American Egret	3	4/29	3	4/29-4/30	3	4/30				6
Pied Billed Grebe	4	1/1	6	1/20	1	3/5				256
II. Shorebirds, Gulls, and Terns:										
Laughing Gull	2	3/31	55	4/30	55	4/30				884
Ring Billed Gull	120	1/1	120	1/1	90	4/30				12600
Herring Gull	80	1/1	80	1/1	15	4/30				5700
Great Black Backed Gull	12	1/1	12	1/1	1	2/10				266
Common Snipe	25	1/1	25	1/1	4	4/30				1740
Killdeer	16	1/1	28	1/25	8	4/30				2040
Royal Tern	4	4/10	8	4/30	8	4/30				120
Common Tern	2	3/30	12	4/30	12	4/30				224
Greater Yellowlegs	1	4/10	6	4/21	4	4/30				80
Upland Plover	2	4/21	2	4/21	2	4/21				2

(over)

(1)	(2)		(3)		(4)		(5)		(6)
II. Doves and Pigeons:									
Mourning dove	50	1/1	300	1/24 to 2/8	25	4/30			15,000
White-winged dove									
IV. Predaceous Birds:									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow	30	1/1	50	4/15	45	4/30			5040
Osprey	4	4/21	4	4/21-4/30	4	4/30			36
Red Tailed Hawk	4	1/1	6	1/19	5	4/30			600
Red Shouldered Hawk	5	1/1	5	1/1	3	4/30			480
Coopers Hawk	1	2/1	1	2/1-2/25	1	2/25			25
Marsh Hawk	1	1/1	2	1/20	1	3/5			64
Sparrow Hawk	3	1/1	5	3/5	1	3/28			261
Barred Owl	1	1/1	4	4/10	3	4/30			360

Reported by Paul D. Daly, Refuge Manager

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge **Presquile NWR** Months of **May 1** to **August 31,** 19**70**

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	16	5/1	16	5/1-8/31	16	8/31				1,968
Little Green Heron	2	5/1	6	7/9	1	8/31				369
Little Blue Heron	1	7/9	8	7/30	2	8/10				128
American Egret	3	5/1	48	8/16	40	8/31				3,690
Snowy Egret	2	6/13	5	7/30	1	8/10				171
Glossy Ibis	15	7/6	15	7/6	15	7/6				15
II. Shorebirds, Gulls, and Terns:										
Laughing Gull	55	5/1	150	8/15	125	8/31				13,530
Ring-Billed Gull	90	5/1	120	5/13	80	8/31				11,808
Herring Gull	15	5/1	55	8/20	50	8/31				4,920
Common Snipe	4	5/1	4	5/1	1	5/8				24
Killdeer	8	5/1	20	7/9	10	8/31				1,599
American Woodcock	1	6/7	1	6/7	1	6/7				1
Royal Tern	8	5/1	8	5/1	1	6/15				276
Caspian Tern	12	5/10	12	5/10	3	5/25				135
Common Tern	12	5/1	25	5/13	2	7/9				910
Greater Yellowlegs	4	5/1	10	6/7	3	8/31				738
Spotted Sandpiper	3	5/14	12	6/7	6	7/29				532

(over)

(1)	(2)		(3)		(4)		(5)			(6)
II. Doves and Pigeons:										
Mourning dove	25	5/1	400	8/15	250	8/31		50	150	27,675
White-winged dove										
IV. Predaceous Birds:										
Golden eagle										
Duck hawk										
Horned owl										
Magpie										
Raven										
Crow	45	5/1	55	6/15	25	8/31				5,166
Bald Eagle	1	5/19	1	5/19-8/19	1	8/19				92
Osprey	4	5/1	4	5/1	1	8/31				369
Red-tailed Hawk	5	5/1	6	7/15	2	8/31				492
Red-Shouldered Hawk	3	5/1	3	5/1	2	8/31				369
Barred Owl	3	5/1	3	5/1-8/31	3	8/31				369

Reported by Paul D. Daly Refuge Manager

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge **Presquile NWR** Months of **September 1** to **December 31** 19 **70**

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	16	9/1	20	12/15-31	20	12/31				2318
Little Green Heron	1	9/1	10	9/15	2	10/25				220
Louisiana Heron	3	9/23	3	9/23	1	10/5				24
American Egret	40	9/1	40	9/1-20	3	11/28				2492
Cattle Egret	10	10/29	16	11/2	6	11/10				132
White Ibis	1	9/23	1	9/23	1	9/23				1
Double Crested Cormorant	1	11/9	1	11/9	1	11/9				1
Common Gallinule	1	9/17	1	9/17	1	9/17				1
Sora Rail	8	9/8	25	9/20	6	10/31				689
Virginia Rail	3	9/15	10	9/30	2	10/25				200
Pied Billed Grebe	1	10/15	10	12/1-10	8	12/31				462
Horned Grebe	4	12/22	4	12/22	2	12/31				27
II. Shorebirds, Gulls, and Terns:										
Laughing Gull	125	9/1	125	9/1-5	2	11/2				5292
Ring-billed Gull	80	9/1	250	12/10	200	12/31				21594
Herring Gull	50	9/1	125	11/28	85	12/31				10614
Great Black Backed Gull	2	11/28	8	12/22	6	12/31				165
Common Snipe	1	10/29	30	12/15-31	30	12/31				1260
American Woodcock	2	9/15	2	9/15-20	1	10/31				94
Killdeer	10	9/1	12	9/26	4	12/31				1098
Common Tern	3	9/15	3	9/15-10/2	1	11/4				100
Forsters Tern	5	9/8	20	9/28	6	10/6				280
Greater Yellowlegs	3	9/1	5	9/8	2	9/21				60
Northern Phalarope	1	11/16	1	11/16	1	11/16				1

(over)

(1)	(2)		(3)		(4)		(5)	(6)
II. Doves and Pigeons:								
Mourning dove	250	9/1	250	9/1-25	30	12/31		21,594
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk								
Horned owl								
Magpie								
Raven								
Crow	25	9/1	35	10/15	12	12/31		2928
Bald Eagle	1	12/10	1	12/10	1	12/10		1
Osprey	1	9/1	1	9/1-9/20	1	9/20		20
Red Tailed Hawk	2	9/1	8	11/6-12/10	6	12/31		610
Red Shouldered Hawk	2	9/1	6	12/22	5	12/31		488
Marsh Hawk	3	10/21	3	10/21-29	2	12/31		213
Sparrow Hawk	2	11/5	4	12/18	3	12/31		168
Barred Owl	3	9/1	5	10/16	4	12/31		488
Barn Owl	1	12/10	1	12/10-31	1	12/31		21

Reported by Paul D. Daly, Refuge Manager

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Presquile N W R For 12-month period ending August 31, 1970

Reported by Paul D. Daly Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type	Acreage		(3) Use-days	(4) Breeding Population	(5) Production
	Crops	239	Ducks	1,064,091	180	96
	Upland	81	Geese	1,095,899	0	0
	Marsh	250	Swans	70	0	0
	Water	1629	Coots	1750	0	0
	Total	2199	Total	2,161,810	180	96
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.

(5) Production: Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

3-1752
(Form NR-2)
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile N.W.R. Months of January 1 to April 30, 1970

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-White Quail	Field borders and swamp edges (300 acres)	7.5	0	0	Unknown	0	0	0	40	Quail population remains fairly high
Turkey	Entire refuge hardwood swamp, marshes, and uplands (1329 Ac.)	66	0	0	3 Males to 1 Female	0	0	0	20	
Pheasant	Uplands and edges (300 acres)	150	0	0	1:1	0	0	0	2	These birds were raised at Curles Neck and flew across river channel to the refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1752
(Form NR-2)
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile N.W.R. Months of May 1 to August 31, 1970

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-white Quail	Field borders and swamp edges (300 acres)	5	3	30	Unknown 0	0	0	0	60	Fine Production
Turkey	Entire refuge hardwood swamp, marshes and uplands (1329 acres)	66	1	4	3 males to 1 female 0	0	0	0	20	
Pheasant	Uplands and edges (300 acres)	150	0	0	2 hens 0	0	0	0	2	Saw 1 cock and 2 hens in June but cock was killed in July (observed coon at carcass)

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1752
(Form NR-2)
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile NWR — Months of Sept. 1 to ~~Dec. 31~~, 19~~70~~

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-white Quail	Field borders and swamp edges (300 acres)	6	0	0	Unknown	0	0	0	50	three coveys known
Pheasant	Uplands and edges (300 acres)	100	1	3	1 male 2 females	0	0	0	3	First nesting known on island. Young pheasant caught in dove trap.
Turkey	Entire refuge hardwood swamp, marshes and uplands (1329 acres)	53	0	0	3 males to 1 female	0	0	0	25	high population - fifteen

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

Form NR-3
(June 1945)

BIG GAME

Refuge Presquile NWR Calendar Year 1970

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed deer	Entire refuge (1329 acres)	35	17					9				175	125	1:1

Remarks: * indicates deer shot during the bow hunt and believed dead through infection or loss of blood etc. but not found.

Reported by Paul D. Daly

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each</u> <u>species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Presquile N.W.R. Year ending April 30, 1970

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Raccoon	1329 acres (entire refuge)	9	0	0	5	0	0							150
Muskrat	Marsh, river and creek banks (600 acres)	2.4	0	0	0	0	0							250
Striped Skunk	Uplands and edges (300 acres)	10	0	0	0	0	0							30
Opossum	Uplands and edges (300 acres)	20	0	0	0	0	0							15
Grey Squirrel	Hardwood swamp and edges (300 acres)	4	0	0	0	0	0							200
Groundhog	Uplands, edges, and river banks (348 acres)	8	0	0	20	0	0							50
Red Fox	1200 acres	200	0	0	0	0	0							6
Cottontail Rabbit	Fields and edges (300 acres)	15	0	0	0	0	0							20
Beaver	Tidal marsh and swamp (1000 acres)	250	0	0	0	0	0							4*

* List removals by Predator Animal Hunter

REMARKS: * Beavers have lodge on farm pond across East Channel from refuge and travel back and forth.

Reported by Paul D. Daly

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

32/15

3-1755
Form NR-5

DISEASE

Refuge Presquile NWR Year 19 70

Botulism

Period of outbreak None

Period of heaviest losses

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage)

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life

Remarks

Lead Poisoning or other Disease

Kind of disease

Species affected

Number Affected

Species	Actual Count	Estimated

Number Recovered

Number lost

Source of infection

Water conditions

Food conditions

Remarks

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

MONTHLY RECREATIONAL USE REPORT

Refuge name: **Presquile NWR**
State: **Virginia**

State Code: 46 (1-2) | Congressional District Code: 03 (3-4) | Refuge Code: 455 (5-7) | Report Period: Yr. 79 Mo. [ ] (8-11) **Annual Summary**

(Card Columns). . . . . (12-13)		(14-18) (19-25)	
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
Hunting: Big Game	01	541	4086
Upland Game	02		
Waterfowl	03		
Other Migratory	04		
Other	05		
Bow	06	541	4086
Fishing: Salt Water	07		
Warm Water	08	725	1450
Cold Water	09		
Environmental Education	10	55	71
Wildlife Photography	11	3	13
Wildlife Observation	12	790	2269
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	69	146
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	370	344
Wildlife Interpretive Center	20		
Off-Site Programs	21	908	33

(Card Columns). . . . . (12-13)		(14-18) (19-25)	
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
On-Site Programs	22	580	37
*Miscellaneous Wildlife	23	181	614
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33		
*Miscellaneous Non-Wildlife	34	17	44
Peak Load Day	35	86	
Actual Visits	36	2378	
Fee Area Use	37		
Number of Fee Areas	38	(14-18) 1	
Fee Collections	39	$ 734.00	
Collection Costs	40	$ 78.00	

Form 3-123
(Revised July 1960)**

*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Post Office Box 658
Hopewell, Virginia 23860

PRESQUILE NATIONAL WILDLIFE REFUGE
Deer Hunting Regulations - 1970

Public hunting of white-tailed deer on the Presquile National Wildlife Refuge is permitted on the entire refuge except within two hundred yards of all buildings. Hunting shall be in accordance with all applicable state regulations governing the hunting of white-tailed deer, subject to the following special conditions.

(1) A Federal permit costing $2.00 for a two day hunt will be required. Permits will be issued for a two consecutive day period. Permits will be limited to 85 for each two day period and will be issued in advance of the season to hunters selected by an impartial drawing from applications received. Applications must be received on a postcard no later than September 18, 1970, at the Presquile National Wildlife Refuge, P. O. Box 658, Hopewell, Virginia 23860. Permits are nontransferable and will be mailed to selected applicants after the drawing. Payment of the permit fee will be made by October 9, 1970, to the "Bureau of Sport Fisheries and Wildlife" at the above address. Permits not paid for by October 9 will be cancelled and reissued to another applicant.

(2) White-tailed deer may be taken with bow and arrow only from sunrise to 5:30 p.m. EDT (4:30 p.m. EST) on October 15, 16, 23, 24, 30, 31, and November 5 and 6, 1970.

(3) Bag limits: One deer per day, either sex.

(4) All hunters must enter the refuge on the refuge ferry at 6:00 a.m. EDT. Entry by boat is prohibited. There will be an official State checking station on the refuge. Hunters must leave on the ferry by 6:00 p.m. EDT.

(5) All travel on the refuge will be on foot or by refuge vehicles. Horses and dogs are prohibited.

(6) Possession of firearms on the refuge is prohibited.

(7) Hunters shall not disturb, damage or destroy any unharvested crops.

(8) Camping, fires, and littering are prohibited.

(9) All arrows in the possession of each hunter must be marked with the permit number issued to the hunter. The marking may be accomplished in any manner so long as the number is clearly visible.

(10) Eighty-five stands corresponding to the allowable number of hunters on each day are located throughout the refuge. Each hunter will be assigned the stand corresponding to his permit number. Hunters will remain at their assigned stands from sunrise to ~~12 o'clock noon~~ 10 A.M. From ~~12 o'clock noon~~ 10 A.M. to 5:30 p.m. EDT hunters may hunt anywhere within the open area.

(11) Scouting will be permitted on October 9, 10, and 11, 1970. The refuge ferry will take passengers to the island at 8 a.m. EDT and return to the mainland at 10 a.m. and 12 o'clock noon.

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS (1)

Refuge **Presquile NWR** Year 19**70**

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs) Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Plantings (Marsh - Aquatic - Upland) Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
American Beachgrass	**10,000 plants**	**R**	**3/70**	**USDA SCS**	**0**	**0**	**S. W. island bank on navigational channel**	**approx. 18" apart each plant**	**100 yards shoreline by 25' high bank**	**10,000 plants**	**3/70**	**50%**	**Bank erosion, high river tides**
Red Canarygrass	**1,000 plants**	**R**	**11/70**	**USDA SCS**	**0**	**0**	**"**	**"**	**"**	**1,000 plants**	**11/70**	**25%**	**"**
Wild Game Bird Mixture	**30 lbs.**	**R**	**6/70**	**Va. Comm. of Game & Inland Fish**	**0**	**0**	**Field #8a**	**15 lb/ acre**	**2 acres**	**seeds**	**6/70**	**good**	**seed eaten by birds before germination**

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches **2 acres**
Forest plantings _____
river bank (erosion control) 1/5 acre

Remarks: _____

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Presquile NWR County Chesterfield State Virginia

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Corn	0	0	0	0	85	5300 bu.	85		
Buckwheat overseeded with ryegrass	0	0	0	0	17	170/85	17		
Wheat	0	0	0	0	56	0/6	56		
								Ryegrass-waterfowl browse	2
								Clover-waterfowl browse	6
								Soybeans-green manure	66
								Permanent pasture 95% fescue	93
								Fallow Ag. Land	30

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				239
Hay - Wild				2. Acreage Cultivated as Service Operation				239

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

INT.DUP.,D.C.61-88850

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Presquile NWR Months of January through December, 1970

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat (Blueboy)	50 bu.	90 bu.	140 bu.	0	137 bu.	0	137 bu.	3 bu.	3 bu.	0	0
Corn	300 bu.	75 bu.	375 bu.	0	0	225 bu.	225 bu.	150 bu.	0	150 bu.	0
Corn (hybrid seed)	0	15 bu.	15 bu.	0	15 bu.	0	15 bu.	0	0	0	0
Buckwheat (Japanese)	0	1500 lbs.	1500 lbs.	0	1500 lbs.	0	1500 lbs.	0	0	0	0
Ryegrass seed	100 lbs.	400 lbs.	500 lbs.	0	500 lbs.	0	500 lbs.	0	0	0	0
Soybeans (Dare)	0	50 bu.	50 bu.	0	50 bu.	0	50 bu.	0	0	0	0

(8) Indicate shipping or collection points Hopewell, Virginia

(9) Grain is stored at Presquile National Wildlife Refuge - grain bin in barn.

(10) Remarks Approximately 75 bushels of shelled corn received from Back Bay NWR for use in banding operations.

*See instructions on back.

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.–DUP. SEC., WASH., D.C. 59323

3-1761
Form NR-11
(2/46)

TIMBER REMOVAL

Refuge Presquile NWR Year 1970

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
None								

Total acreage cut over..... Total income.....

No. of units removed B. F..... Method of slash disposal.....

Cords.....

Ties.....

.....

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Presquile NWR

Proposal Number: 70-1

Reporting Year: 1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

* Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
May 26	Jimson weed Lambsquarter Dock Wild mustard Pig weed	fields 2b, 2d, 5z, 8a	67	Atrazine 80% wettable powder	134 lbs.	1.6 a.e/acre	Nitrogen	commercial application

10. Summary of results (continue on reverse side, if necessary)

Very good results - clean corn crop.

3-1979 (NR-12)
(9/63)

Bureau of Sport F[illegible]eries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Presquile NWR

Proposal Number: 70-2

Reporting Year: 1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 11 and June 23	Johnson grass	Spot infestations all refuge fields and fence rows	15	Dalapon	75 lbs.	5 lbs. a.e/ acre	water	refuge tractor PTO

10. Summary of results (continue on reverse side, if necessary)

Very good control of most Johnson grass infestations.

3-1979 (NR-12)
(9/63)

Bureau of Sport F eries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: **Presquile NWR**

Proposal Number: **70-3**

Reporting Year: **1970**

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

10. Summary of results (continue on reverse side, if necessary)

This proposal not carried out in 1970 due to good condition of corn after atrazine application and one cultivation.

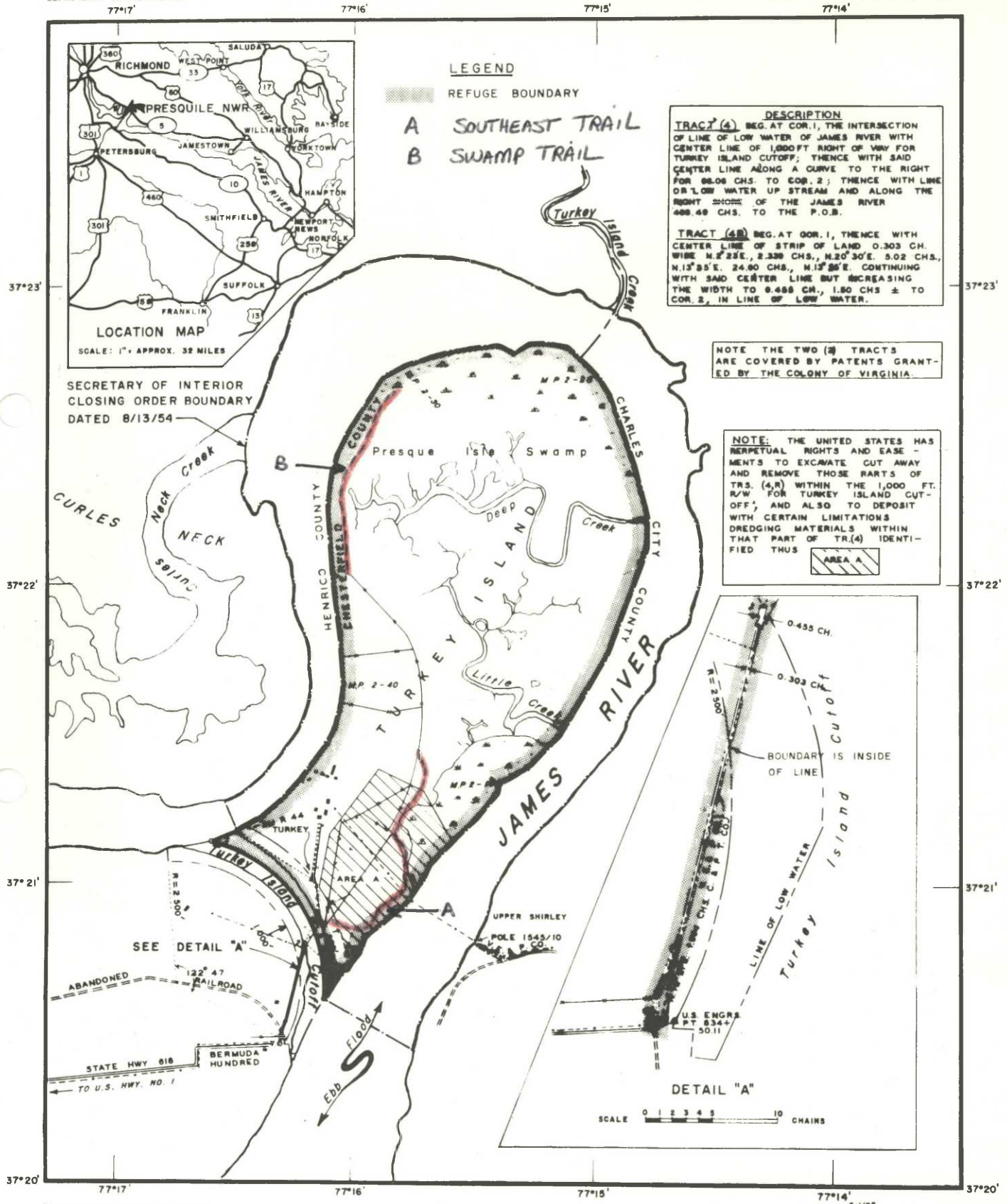
WILDLIFE TRAILS

PRESQUILE NATIONAL WILDLIFE REFUGE

CHESTERFIELD COUNTY, VIRGINIA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



COMPILED IN THE BRANCH OF REALTY
FROM SURVEYS BY B.S.F.W.

ATLANTA, GEORGIA AUGUST, 1965

Scale 0 20 40 60 80 CHAINS
0 1/4 1/2 3/4 1 MILE

6-1/2° TRUE NORTH MAGNETIC
MEAN DECLINATION 1965

4R-VA-451-403

HABITAT COMPOSITION

PRESQUILE NATIONAL WILDLIFE REFUGE

CHESTERFIELD COUNTY, VIRGINIA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

77°17' 77°16' 77°15' 77°14'

37°23' 37°22' 37°21' 37°20'

LEGEND

REFUGE BOUNDARY
MARSH
AGRICULTURAL LAND
WOODED SWAMP
WATER

DESCRIPTION

TRACT (4) BEG. AT COR. 1, THE INTERSECTION OF LINE OF LOW WATER OF JAMES RIVER WITH CENTER LINE OF 1,000 FT RIGHT OF WAY FOR TURKEY ISLAND CUTOFF; THENCE WITH SAID CENTER LINE ALONG A CURVE TO THE RIGHT FOR 66.06 CHS. TO COR. 2; THENCE WITH LINE OF LOW WATER UP STREAM AND ALONG THE RIGHT ~~SHORE~~ OF THE JAMES RIVER 406.49 CHS. TO THE P.O.B.

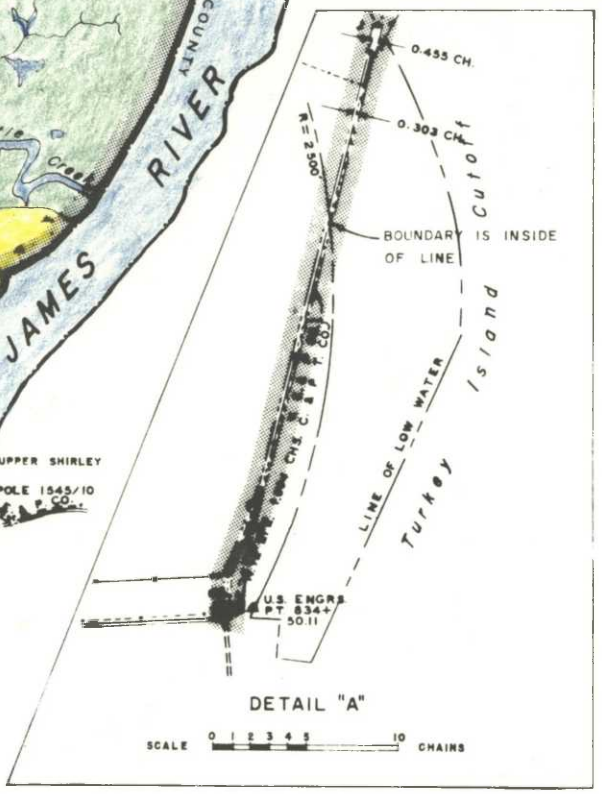
TRACT (4R) BEG. AT COR. 1, THENCE WITH CENTER LINE OF STRIP OF LAND 0.303 CH. WIDE N.2°25'E., 2.339 CHS., N.20°30'E. 5.02 CHS., N.13°35'E. 24.00 CHS., N.13°35'E. CONTINUING WITH SAID CENTER LINE BUT INCREASING THE WIDTH TO 0.455 CH., 1.50 CHS ± TO COR. 2, IN LINE OF LOW WATER.

NOTE THE TWO (2) TRACTS ARE COVERED BY PATENTS GRANTED BY THE COLONY OF VIRGINIA.

NOTE: THE UNITED STATES HAS PERPETUAL RIGHTS AND EASEMENTS TO EXCAVATE CUT AWAY AND REMOVE THOSE PARTS OF TRS. (4,R) WITHIN THE 1,000 FT. R/W FOR TURKEY ISLAND CUTOFF, AND ALSO TO DEPOSIT WITH CERTAIN LIMITATIONS DREDGING MATERIALS WITHIN THAT PART OF TR.(4) IDENTIFIED THUS AREA A

SECRETARY OF INTERIOR
CLOSING ORDER BOUNDARY
DATED 8/13/54

Presque Isle Swamp
Deep Creek
Little Creek
Turkey Island Creek
Curles Neck Creek
CURLES NECK
HENRICO COUNTY
CHESTERFIELD COUNTY
CHARLES CITY COUNTY
TURKEY ISLAND
JAMES RIVER
MP 2-40
MP 2-
AREA A
HEADQUARTERS
TURKEY
TURKEY ISLAND
FERRY CROSSING
SEE DETAIL "A"
R=2,500'
ABANDONED
122° 47
RAILROAD
CUTOFF
STATE HWY 618
BERMUDA HUNDRED
TO U.S. HWY. NO. 1
EBB
Flood
UPPER SHIRLEY
POLE 1545/10
A.P. CO.



COMPILED IN THE BRANCH OF REALTY
FROM SURVEYS BY B.S.F.W.

ATLANTA, GEORGIA AUGUST, 1965

Scale 0 20 40 60 80 CHAINS
0 1/4 1/2 3/4 1 MILE

6-1/2° TRUE NORTH MAGNETIC N

MEAN DECLINATION 1965

4R-VA-451-403

70-1 We banded 1017 ducks in 1970; this not too imposing looking trap in deep creek got 75% of them

70-2 A late winter ice storm may inconvenience us temporarily; but it does provide some scenes of great beauty.

70-3 Maintenanceman Vick planting beachgrass on our river bank. We placed plants about 18" apart each way.

70-4 After about 2 months growth. There had been absolutely no vegetation on this bank. We wound up with 50% survival of the beachgrass.

70-5 I wish I had had a telephoto lens for this one; young foxes at entrance to den in field #3.

70-6 About 35 young fawns were produced this year; most of them in the refuge fields.

70-7 Large freighters frequently make their way through the narrow ship channel going to and from Richmond's deepwater port.

70-8 Caution signs were placed on piling clusters at both sides of the channel to warn river traffic of our cable.

70-9 Corn got up about so high before being affected severely by drought and blight.

70-10 Some fields such as #8a still produced excellent corn. This is Pioneer 309C variety.

70-11 The ferry showing off a new coat of paint. It still isn't much to look at; but it gets us back and forth.

70-12 Vegetation in the east marsh in late summer. Pickerelweed, rice cutgrass, wild rice etc. One of our vegetative transect poles shows in upper right corner.

70-13 We set up all the monuments in the old cemetary and permanently mounted them to their bases. Deer rub against the stones and used to topple them over.

70-14 The oldest monument; dating to the eighteenth century. There may be even older ones buried somewhere on the farm.

70-15 Contractor building a stone base for our entrance sign. He did an excellent job quickly and at a reasonable cost.

70-16 Completed sign. It shows to best advantage to visitors as they cross the channel on the ferry.

70-17 Stands for our deer hunt were marked simply with 12"x12" pieces of plywood painted white with black numerals. Hunters were required to stay within 25 yards of their stand during the early hours of the hunt.

70-18 The nicest deer this year; a 9 point 120.5 lb. buck shot by young Darrel McCabe of Hopewell.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Presquile NWR MONTHS OF Sept. 1 TO Dec. 31, 1970

(1) Species	(2) Weeks of reporting period: 5 days									
	9/1-9/5 : 1	9/6-9/12 : 2	9/13-9/19 : 3	9/20-9/26 : 4	9/27-10/3 : 5	10/4-10/10 : 6	10/10-17 : 7	10/18-24 : 8	10/25-31 : 9	11/1-11/7 : 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					25	100	1000	2000	3500	3500
Cackling										
Brant										
White-fronted										
Snow									10	10
Blue									25	35
Other										
Ducks:										
Mallard	10	30	45	250	250	250	400	600	900	900
Black	30	50	240	300	300	300	500	600	600	4000
Gadwall										
Baldpate										
Pintail				45	200	200	200	200	200	100
Green-winged teal						25	25	100	100	100
Blue-winged teal		15	10	50	25	15	10			
Cinnamon teal										
Shoveler										
Wood	500	800	800	600	700	1000	1200	1500	1500	1200
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										10
Other										
Coot						25	25	25	25	25

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Presquile NWR MONTHS OF Sept. 1 TO Dec. 31 ,19 70

(1) Species	(2) Weeks of reporting period 11	12	13	14	15	16	17	18	(3) Estimated waterfowl days use	(4) Production Broods seen	Estimated total
Swans:											
Whistling				2			2		28		
Trumpeter											
Geese:											
Canada	5000	5000	6000	7000	7000	7000	7000	8000	418.875		
Cackling											
Brant											
White-fronted											
Snow	25	25	25	25	25	25	20	20	1,430		
Blue	200	200	200	200	200	200	175	150	10.795		
Other											
Ducks:											
Mallard	4575	4575	4575	6000	3200	4150	6525	9100	306.125		
Black	3800	3800	3800	3800	2500	3000	3300	4750	240.130		
Gadwall											
Baldpate							5		35		
Pintail	1000	1000	1000	800	400	900	1250	1200	58.465		
Green-winged teal	100	600	600	600	300	300	1200	1000	33.350		
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood	2150	2150	2150	3000	2600	2050	3050	3425	204.775		
Redhead											
Ring-necked		50	50	50		5		10	1.135		
Canvasback											
Scaup							5	10	85		
Goldeneye											
Bufflehead						10	10		140		
Ruddy	10	10	10	10	10			25	545		
~~Other~~ Com. Merganser			10	15	60	75	150	80	2570		
Coot:	25	25	150	150	50	25	15	10	4005		

(Over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	28	2	0	Principal feeding areas **Ducks - east marsh, north marsh, wooded swamp. Geese - refuge fields**
Geese	431,100	8,170	0	
Ducks	847,355	19,600	0	Principal nesting areas
Coots	4,005	150	0	

Reported by **Paul D. Daly, Refuge Manager**

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

3-1751
Form NR-1A
(Aug. 1952)

MIGRATORY BIRDS
(Other than Waterfowl)

Refuge **Presquile NWR** Months of **September 1** to **December 31** 19 **70**

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds:										
Great Blue Heron	16	9/1	20	12/15-31	20	12/31				2318
Little Green Heron	1	9/1	10	9/15	2	10/25				220
Louisiana Heron	3	9/23	3	9/23	1	10/5				24
American Egret	40	9/1	40	9/1-20	3	11/28				2492
Cattle Egret	10	10/29	16	11/2	6	11/10				132
White Ibis	1	9/23	1	9/23	1	9/23				1
Double Crested Cormorant	1	11/9	1	11/9	1	11/9				1
Common Gallinule	1	9/17	1	9/17	1	9/17				1
Sora Rail	8	9/8	25	9/20 -	6	10/31				689
Virginia Rail	3	9/15	10	9/30	2	10/25				200
Pied Billed Grebe	1	10/15	10	12/1-10	8	12/31				462
Horned Grebe	4	12/22	4	12/22 -	2	12/31				27
II. Shorebirds, Gulls, and Terns:										
Laughing Gull	125	9/1	125	9/1-5	2	11/2				5292
Ring-billed Gull	80	9/1	250	12/10	200	12/31				21594
Herring Gull	50	9/1	125	11/28	85	12/31				10614
Great Black Backed Gull	2	11/28	8	12/22	6	12/31				165
Common Snipe	1	10/29	30	12/15-31	30	12/31				1260
American Woodcock	2	9/15	2	9/15-20	1	10/31				94
Killdeer	10	9/1	12	9/26	4	12/31				1098
Common Tern	3	9/15	3	9/15-10/2	1	11/4				100
Forsters Tern	5	9/8	20	9/28-	6	10/6				280
Greater Yellowlegs	3	9/1	5	9/8	2	9/21				60
Northern Phalarope	1	11/16	1	11/16	1	11/16				1

(over)

(1)	(2)	(3)		(4)		(5)	(6)
II. Doves and Pigeons:							
Mourning dove	250	9/1	250	9/1-25	30	12/31	21,594
White-winged dove							
IV. Predaceous Birds:							
Golden eagle							
Duck hawk							
Horned owl							
Magpie							
Raven							
Crow	25	9/1	35	10/15	12	12/31	2928
Bald Eagle	1	12/10	1	12/10	1	12/10	1
Osprey	1	9/1	1	9/1-9/20	1	9/20	20
Red Tailed Hawk	2	9/1	8	11/6-12/10	6	12/31	610
Red Shouldered Hawk	2	9/1	6	12/22	5	12/31	488
Marsh Hawk	3	10/21	3	10/21-29	2	12/31	213
Sparrow Hawk	2	11/5	4	12/18	3	12/31	168
Barred Owl	3	9/1	5	10/16	4	12/31	488
Barn Owl	1	12/10	1	12/10-31	1	12/31	21

Reported by **Paul D. Daly, Refuge Manager**

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated species days use (average population X no. days present) of refuge during the reporting period.

3-1752
(Form NR-2)
(April 1946)

UPLAND GAME BIRDS

Refuge **Presquile NWR** Months of **Sept. 1** to **Dec. 31**, 1970

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-white Quail	**Field borders and swamp edges (300 acres)**	6	0	0	**Unknown**	0	0	0	50	**three coveys known**
Pheasant	**Uplands and edges (300 acres)**	100	1	3	**1 male 2 females**	0	0	0	3	**First nesting known on island. Young pheasant caught in dove trap.**
Turkey	**Entire refuge hardwood swamp, marshes and uplands (1329 acres)**	53	0	0	**3 males to 1 female**	0	0	0	25	**high population - fifteen**

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

Form NR-3
(June 1945)

BIG GAME

Refuge Presquile NWR Calendar Year 1970

(1) * Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease *	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed deer	Entire refuge (1329 acres)	35	17					9				175	125	1:1

Remarks: * indicates deer shot during the bow hunt and believed dead through infection or loss of blood etc. but not found.

Reported by Paul D. Daly

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each</u> <u>species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116008

3-1755
Form NR-5

DISEASE

Refuge Presquile NWR Year 1970

Botulism

Period of outbreak None

Period of heaviest losses

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage)

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life

Remarks

Lead Poisoning or other Disease

Kind of disease

Species affected

Number Affected Species	Actual Count	Estimated

Number Recovered

Number lost

Source of infection

Water conditions

Food conditions

Remarks

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

MONTHLY RECREATIONAL USE REPORT

Refuge name: **Presquile NWR**
State: **Virginia**

State Code: 46 (1-2) | Congressional District Code: 03 (3-4) | Refuge Code: 455 (5-7) | Report Period Yr. 79 Mo. (8-11) | Annual Summary

(Card Columns)	(12-13)	(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH: Total Number	Total Hours
Hunting: Big Game	01	541	4086
Upland Game	02		
Waterfowl	03		
Other Migratory	04		
Other	05		
Bow	06	541	4086
Fishing: Salt Water	07		
Warm Water	08	725	1450
Cold Water	09		
Environmental Education	10	55	71
Wildlife Photography	11	3	13
Wildlife Observation	12	790	2269
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	69	146
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	370	344
Wildlife Interpretive Center	20		
Off-Site Programs	21	908	33

(Card Columns)	(12-13)	(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH: Total Number	Total Hours
On-Site Programs	22	580	37
*Miscellaneous Wildlife	23	181	614
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33		
*Miscellaneous Non-Wildlife	34	17	44
Peak Load Day	35	86	
Actual Visits	36	2378	
Fee Area Use	37		
Number of Fee Areas	38	(14-18) 1	
Fee Collections	39	$ 734.00	
Collection Costs	40	$ 78.00	

Form 3-123
(Revised July 1969)*

*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS (1)

Refuge **Presquile NWR** Year 1970

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
American Beachgrass	**10,000 plants**	**R**	**3/70**	**USDA SCS**	**0**	**0**	**S. W. island bank on navigational channel**	**approx. 18"apart each plant**	**100 yards shoreline by 25'high bank**	**10,000 plants**	**3/70**	**50%**	**Bank erosion, high river tides**
Red Canarygrass	**1,000 plants**	**R**	**11/70**	**USDA SCS**	**0**	**0**	**"**	**"**	**"**	**1,000 plants**	**11/70**	**25%**	**"**
Wild Game Bird Mixture	**30 lbs.**	**R**	**6/70**	**Va. Comm.of Game & Inland Fish**	**0**	**0**	**Field #8a**	**15 lb/ acre**	**2 acres**	**seeds**	**6/70**	**good**	**seed eaten by birds before germ-ination**

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches **2 acres**
Forest plantings _____
river bank (erosion control) 1/5 acre

Remarks: _____

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Presquile NWR County Chesterfield State Virginia

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Corn	0	0	0	0	65	3900 bu.	65		
Buckwheat overseeded with ryegrass	0	0	0	0	17	170/85	17		
Wheat	0	0	0	0	56	0/6	56		
								Ryegrass-waterfowl browse	2
								Clover-waterfowl browse	6
								Soybeans-green manure	66
								Permanent pasture 95% fescue	93
								Fallow Ag. Land	30

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				239
Hay - Wild				2. Acreage Cultivated as Service Operation				239

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Presquile NWR Months of January through December, 1970

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wheat (Blueboy)	50 bu.	90 bu.	140 bu.	0	137 bu.	0	137 bu.	3 bu.	3 bu.	0	0
Corn	300 bu.	75 bu.	375 bu.	0	0	225 bu.	225 bu.	150 bu.	0	150 bu.	0
Corn (hybrid seed)	0	15 bu.	15 bu.	0	15 bu.	0	15 bu.	0	0	0	0
Buckwheat (Japanese)	0	1500 lbs.	1500 lbs.	0	1500 lbs.	0	1500 lbs.	0	0	0	0
Ryegrass seed	100 lbs.	400 lbs.	500 lbs.	0	500 lbs.	0	500 lbs.	0	0	0	0
Soybeans (Dare)	0	50 bu.	50 bu.	0	50 bu.	0	50 bu.	0	0	0	0

(8) Indicate shipping or collection points Hopewell, Virginia

(9) Grain is stored at Presquile National Wildlife Refuge - grain bin in barn.

(10) Remarks Approximately 75 bushels of shelled corn received from Back Bay NWR for use in banding operations.

*See instructions on back.

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.-DUP. SEC., WASH., D.C. 59323

3-1761
Form NR-11
(2/46)

TIMBER REMOVAL

Refuge Presquile NWR Year 1970

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
None								

Total acreage cut over..... Total income.....

No. of units removed B. F..... Method of slash disposal.....
Cords.....
Ties.....
.....

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Presquile NWR

Proposal Number: 70-1

Reporting Year: 1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
May 26	Jimson weed Lambsquarter Dock Wild mustard Pig weed	fields 2b, 2d, 5z, 8a	67	Atrazine 80% wettable powder	134 lbs.	1.6 a.e/acre	Nitrogen	commercial application

10. Summary of results (continue on reverse side, if necessary)

Very good results - clean corn crop.

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Presquile NWR

Proposal Number: 70-2

Reporting Year: 1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 11 and June 23	Johnson grass	Spot infestations all refuge fields and fence rows	15	Dalapon	75 lbs.	5 lbs. a.e/ acre	Water	refuge tractor PTO

10. Summary of results (continue on reverse side, if necessary)

Very good control of most Johnson grass infestations.

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: **Presquile NWR**

Proposal Number: **70-3**

Reporting Year: **1970**

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

10. Summary of results (continue on reverse side, if necessary)

This proposal not carried out in 1970 due to good condition of corn after atrazine application and one cultivation.